BSA

Instruction Manual

Models

1946—1955

B31 350 c.c. O.H.V.
B32 350 c.c. O.H.V. Competition
B32 350 c.c. O.H.V. Gold Star
B33 500 c.c. O.H.V.
B34 500 c.c. O.H.V. Competition
B34 500 c.c. O.H.V. Gold Star

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Instruction Manual

for

B Models

1946—1955

B.S.A. MOTOR CYCLES LTD, ARMOURY ROAD BIRMINGHAM, 11

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This Instruction Manual is intended to acquaint the B.S.A. owner with details of the controls, general maintenance and technical data which may be required for normal operation of the machine.

It does not contain the information necessary to carry out complete stripping for major overhauls, but if any owner feels he is competent to carry out this type of work a Service Manual and an illustrated, Spares Catalogue for this machine can be obtained from your B.S.A. spares stockist or local distributor.

Owners in the British Isles can obtain these publications direct from B.S.A. Motor Cycles Ltd., Service Department, Waverley Works, Birmingham 10. The Service Manual is priced at seven shillings, plus sixpence postage, and the Spares Catalogue is five shillings and sixpence, plus sixpence postage. Always quote full engine and frame numbers when ordering these publications.

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TECHNICAL DATA

	B31	B32 Comp. 2 or 3	B32 G.S.	B33 3	B34 Comp. 2 or 3	B34 G.S
Petrol tank capacity (gallons)	3					
Petrol tank capacity with Swinging Arm suspension (gallons)	2 or 4	—	2 or 4	3 or 4	—	*2 or 4
Oil tank capacity (pints)	4½	3½	—	4½	3½	—
Oil tank capacity with Swinging Arm suspension (pints)	5½	—	5½	5½	—	5½
Gearbox capacity (pints)	1	1	1	1	1	1
Primary chain oilbath (fl. oz.)	2 (55 c.c.)	8 (225 c.c.)	—	2 (55 c.c.)	8 (225 c.c.)	—
Primary chain with Swinging Arm suspension (fl. oz.)	8 (225 c.c.)	—	8 (225 c.c.)	8 (225 c.c.)	—	8 (225 c.c.)
Bore (mm.)	71	71	71	85	85	85
Stroke (mm.)	88	88	88	88	88	88
Capacity (c.c.)	348	348	348	499	499	499
Valve clearances (cold) (in.)	.003	*	.003	.003	.003	*
Compression ratio	6.5—1	*	*	6.5—1	6.8—1	*
Piston ring gap (in.) Max.	.012	.012	.012	.012	.012	.012
Piston ring gap (in.) Min.	.008	.008	.008	.008	.008	.008
*Valve timing (see page 46) Inlet	Opens	25° before t.d.c.		Closes 65° after b.d.c.		
*Valve timing (see page 46) Exhaust	Opens	65° before b.d.c.		Closes 25° after t.d.c.		
Ignition timing (fully advanced), piston distance in inches before t.d.c., points open .002 in.	7/16	7/16	*	⅜	7/16	*
Sparking plug	L10S	NA8	*	L10S	NA8	*
Plug points gap (in.) Max.	.020	.020	.020	.020	.020	.020
Plug points gap (in.) Min.	.018	.018	.018	.018	.018	.018
	STD. S.A.			STD. S.A.		
Gear ratios Top	5.6 5.6	7.05	*	5.0 5.0	5.64	*
Third	7.38 6.77	10.25	*	6.59 6.05	8.24	*
Second	11.5 9.86	16.45	*	10.3 8.79	13.2	*
First	16.7 14.42	22.3	*	14.9 12.90	17.80	*
Front tyre	3.25—19	2.75—21	*	3.25—19	2.75—21	*
Rear tyre	3.25—19	4.00—19	*	3.50—19	4.00—19	*
†Tyre pressures (p.s.i.) for touring Front	17	20	21	17	22	21
†Tyre pressures (p.s.i.) for touring Rear (Solo)	22	16	22	18	16	18
Chain sizes and number of pitches— Primary (⅜ in. × .305 in.)	69	67	66 or 68	70	69	67 to 69
Chain sizes and number of pitches— Rear (⅝ in. × ¼ in.)	93	91	97 or 98	93	91	97 or 98
Engine sprocket (teeth)	17	16	*	19	20	*
Gearbox sprocket (teeth)	19	16	*	19	16	*
Standard carburetter main jet	150	150	*	200	200	*
Ditto with air cleaner	150	150	—	170	170	—
'Monobloc' Carburetter (main jet)	260	—	*	260	—	*
Ditto with air cleaner	200	—	—	210	—	—

* *See special instructions for Gold Star models on page 49.*

'S.A.' indicates models fitted with Swinging Arm Rear Suspension.

† NOTE.—The recommended inflation pressures are based on Comp. models with rigid frames and other 'B' models with plunger frames (except for Gold Stars) with a rider's weight of 140 lb. If the rider's weight exceeds 140 lb., increase the tyre pressures as follows: *Front tyre*: Add one lb. per sq. in. for every 28 lb. increase above 140 lb. *Rear tyre*: Add one lb. per sq. in. for every 14 lb. increase above 140 lb. If the machine is fitted with swinging arm rear suspension (8 lb. heavier), other extras or a pillion passenger or luggage is carried, the actual load bearing upon each tyre should be determined and the pressures increased in accordance with the Dunlop Load and Pressure Schedule.

Note: ¼ pint = 5 fl. oz. = 8 tablespoons.

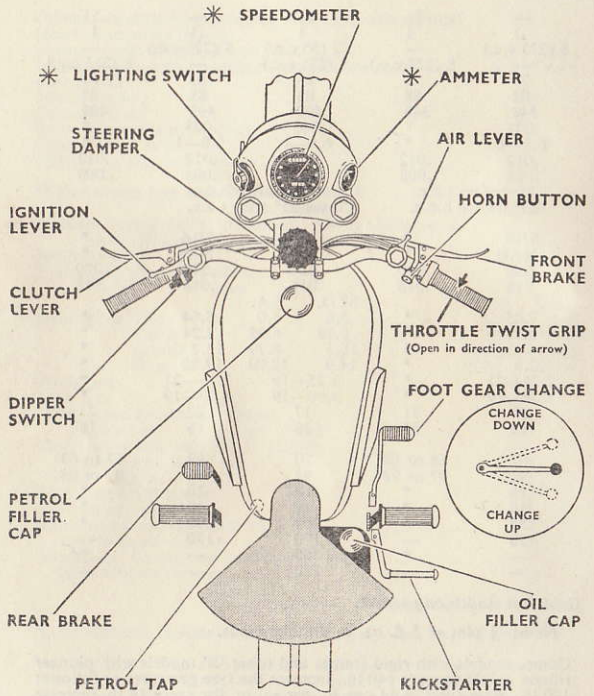


Fig. 1. The Controls

THE CONTROLS

HANDLEBAR CONTROLS

Twist Grip Throttle.

Controls the engine speed. To open the throttle (i.e., to increase the engine speed) turn the grip towards the rider. Full movement about one-quarter of a turn.

Front Brake.

The lever is on the right bar, below the twist-grip throttle. Pull the lever towards the bar to apply the brake, and note that this lever operates the front brake only.

Carburetter Air Lever.

On the right bar, and controls the supply of air to the carburetter, allowing the mixture of air and petrol to be varied as conditions require. Pull towards the rider to open (i.e. to increase the supply of air). Normal running position fully open.

Horn.

The control button is fitted on the back of the front brake lever.

Clutch Lever.

Larger lever below the left bar. Pull towards the bar to declutch (i.e., to disengage the drive between the engine and the rear wheel). As the clutch lever is slowly released the drive is restored gradually. Always declutch when changing gear.

Dipper Switch.

Fitted on the back of the clutch lever, and actuates the double filament bulb in the headlamp giving either a normal or dipped beam.

Ignition Control.

Small lever on top of left bar. Controls the advance and retard of the spark produced by the magneto. Normal running position is fully advanced (i.e., lever moved forward into the closed position. (See page 9 for starting the engine, the lever should be slightly retarded.

Exhaust Valve Lifter (*not illustrated in Fig.* 1).

Small lever under left bar. Pulling the lever up towards the bar opens the exhaust valve, releasing the compression in the combustion chamber and enabling the engine to be rotated easily.

FOOT CONTROLS

Rear Brake Pedal.

On the left hand side of the machine, and operates the rear brake only.

Gear Change Pedal.

On the right hand side of the machine, and is used to effect the change from one gear to another. To engage first gear from the neutral position, the pedal is moved upwards. Second, third, and top gears are engaged by moving the pedal downwards. The pedal automatically returns to the central position, ready for the next gear change. When engaging a gear the pedal should be moved to its extreme limit, since the gear change is of the positive-stop type.

Kickstarter Pedal.

Also on the right hand side of the machine, but is situated behind the gear change pedal. Depression of the kickstarter rotates the engine. See instructions on starting the engine.

GENERAL

Petrol Tap.

The tap is of the push-pull type, and is located under the rear end of the tank. To turn the petrol on, pull the serrated button out. To operate the reserve control, rotate button to right and pull out to lock in position. To turn the petrol off reverse the above procedure.

Steering Lock (except Comp. and G. Stars).

Do not introduce oil into the keyhole as this may clog the wards and wash away the specially prepared lubricant inserted before assembly. However, after considerable mileage or under adverse weather conditions a few drops of thin machine oil may be applied to the periphery of the moving drum.

*** Lighting Switch.**

On the left of the headlamp cowl and controls the lighting of the lamps as indicated by the following markings:— H—Head, tail and speedometer lamps. L—Pilot, tail and speedometer lamps. OFF—Lights not in use but battery on charge.

*** Ammeter.**

On right of the headlamp cowl. Enables the rider to see at a glance whether the battery is being charged or discharged.

*** Speedometer.**

This is set in the headlamp cowl. The trip can be turned back to zero when the spring loaded flexible control under the speedometer is pulled out and twisted in a clockwise direction. The control automatically returns to its original position, i.e. disengaged.

* On Competition and Gold Star machines the lighting switch, ammeter and speedometer are centrally mounted, the former two in a panel on top of the headlamp and the latter bolted to the top yoke.

Central Stand.

This is of the spring-up type and so designed that when the machine is pushed forward off the stand, the latter springs upwards and is automatically retained clear of the road.

DRIVING

Preliminaries.

Before taking the machine out for the first time, it is essential to examine the oil tank, to ensure that an adequate supply of oil is available. The tank has a working capacity of 3¼ pints on competition models, 4½ pints on plunger 'B' models, and for machines fitted with swinging arm rear suspension 5½ pints. Use only high quality lubricants as recommended in the chart on page 36. Examine also the remainder of the lubrication points and verify the quantity of oil in the gearbox and the primary chain oil bath.

To Start the Engine.

It will help in balancing the machine if you stand astride it when first attempting to start. Make sure that the gear control is in the neutral position, i.e., between first and second gear. Note that if the machine is in gear it will move forward when the kickstarter pedal is depressed.

If the engine is cold, first depress the carburetter tickler momentarily. Close the air lever, retard the ignition

slightly and open the twist-grip a small amount. Depress the kickstarter pedal until compression is felt, raise the exhaust valve lifter and depress the kickstarter pedal a little more. Release the valve lifter, allow the kickstarter pedal to return to the top of its stroke and then give it a vigorous kick downwards.

This starting procedure should always be adopted as it allows the engine to gather sufficient momentum to overcome the resistance of the next compression stroke.

Note that while it is necessary to close the air lever when starting from cold, this should not be necessary when the engine is warm.

During normal running the air lever should always be kept fully open, although a slight gain in power at low speeds on hills may sometimes be obtained if the lever is closed a very small amount.

The ignition lever should be fully advanced for normal running. It may have to be retarded slightly if the engine is under an increased load. The manipulation of this control is largely a matter of experience.

To engage First Gear.

Depress the clutch lever (i.e., declutch), and move the gear change pedal *upwards* to its limit. If difficulty is experienced when engaging first gear when stationary, rock the machine backwards and forwards maintaining slight pressure on the gear change pedal until the gear is felt to engage.

To Move Off.

Open the throttle slightly and gently release the clutch lever. As the clutch engages, open the throttle a little further, and when the clutch is fully engaged the machine can be accelerated to a suitable road speed, ready for changing into the next gear.

To Change Gear (Up).

Close the throttle, disengage the clutch and press the gear change pedal downwards to its limit, all these operations being performed simultaneously. Engage the clutch and re-open the throttle together, immediately after changing. *Note.* Violent pressure on the gear change pedal is neither necessary nor desirable.

To Change Gear (Down).

Open the throttle slightly, disengage the clutch and raise the gear change pedal upwards to its limit, all these operations being performed simultaneously. Re-engage the clutch immediately.

Note.—The above movements are quite easy to perform and a little practise will ensure a rapid and quiet gear change. When changing gear, either up or down, it is preferable—after moving the pedal—to hold it momentarily in position with the foot until after the clutch lever has been released, when the gears will be felt to engage. Do not use an excessive opening of the throttle when starting, and do not allow the engine to race when stationary. Use the throttle control to govern the speed of the machine, e.g., when descending a steep hill, if a lower gear is engaged and the throttle closed, the engine will control the speed of descent. On very greasy roads the use of the engine as a brake is to be advocated, particularly in conjunction with a change to a lower gear. It is never advisable, except in cases of emergency, either to accelerate or to brake fiercely; when the roads are greasy both are extremely dangerous.

HINTS ON 'RUNNING-IN' A NEW MOTOR CYCLE

The rider who has just purchased a new machine will do well to remember that all the internal parts are just as new as the enamel and plating which can be seen, and that they must be well "run-in" before the engine can be given any really hard work.

The "running-in" process is the most important period in the life of the engine, and the handling it receives during the first 1,000 to 1,500 miles will determine the service it will provide in return.

It is advisable not to exceed half throttle in any gear. If excessive speeds are used there is risk of piston seizure and other troubles, and in any event until the machine has been "run-in" it cannot be expected to give its best performance. In particular, avoid rapid acceleration, especially when the engine is not under load and do not

allow the engine to labour on hills in a high gear when a change to a lower gear would ease the load on the engine.

Do not let the oil level in the tank get too low, as economy in oil may prove very expensive at a later date. Running consistently with the oil level too low may cause the oil to become unduly hot. It must be remembered that the oil cools as well as lubricates, and a new engine tends to run a little hotter than one that is well "run-in."

One more tip that is worth while—add a small quantity of upper cylinder lubricant to the petrol each time the tank is replenished. If this is difficult to obtain, add about an eggcupful of engine oil to every 2 gallons of petrol.

HOW THE LUBRICATION SYSTEM WORKS

The engine lubrication system (see Fig. 2) is of the dry sump type operated by a double gear pump, situated in the bottom of the crankcase on the right-hand side. All oilways are internal except for the supply and return pipes from the tank and the oil feed to the valve rockers. The oil flows from the tank—through a filter in the tank to the supply pump (the inside crankcase union) and thence past the pressure valve *A* to the oilways feeding the cam spindles and along the hollow mainshaft to the big-end bearing.

After lubricating the big-end and circulating through the engine in the form of mist, the oil drains down through a filter in the bottom of the crankcase, from which it is drawn by the return pump (lower pair of gears) past ball valve *C*, and delivered up the return pipe (outer crankcase union) to the tank. Oil is fed through a union situated in the pipe between the return pump and the tank, to the rocker spindles, and after lubricating the rockers and enclosed valves, is returned to the crankcase through an external oil pipe attached to the base of the inlet valve spring housing. In the case of aluminium engines, the oil returns to the crankcase via the push rod tunnel.

Incorrect seating of the ball valve *A* may allow oil to transfer from the tank to the engine whilst the machine is stationary. In this event, unscrew the plug retaining the valve, and remove spring and ball. Clean the ball and its seating and replace. If necessary, to ensure a close

fit between ball and seat the ball should be replaced on its seating and dealt a sharp blow with a light hammer and punch to make certain that the ball beds on the seat in a satisfactory manner.

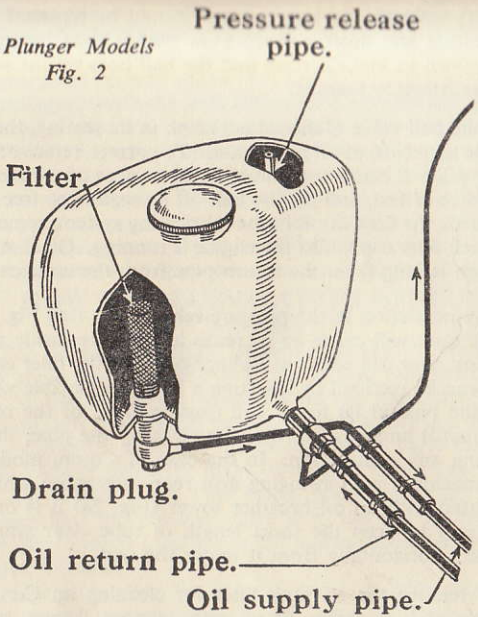
If the ball valve *C* should get stuck in its seating, there will be no return of oil to the tank. To correct, remove the cover plate *B* below the pump, insert a piece of wire into the valve orifice, and lift the ball off its seating to free it. To check the flow of oil in the lubricating system, remove the tank filler cap whilst the engine is running. Oil should be seen issuing from the return pipe from the crankcase.

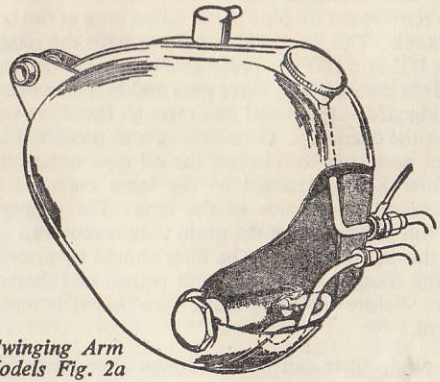
Any restriction in the pressure release pipe (see Fig. 2) in the tank will cause an increase in pressure inside the oil tank, and will result in leakage of oil at the filler cap. This can be rectified by inserting a length of flexible wire into the pipe at its lower end (just in front of the rear mudguard) and pushing the wire right up the pipe, thus clearing any obstruction. In the case of Comp. models and machines with swinging arm rear suspension which are fitted with an oil breather tower (Fig. 2a) it is only necessary to keep the short length of tube clear which projects horizontally from it under the seat.

To remove the oil tank filter for cleaning on Comp. models and machines fitted with plunger frames (see Fig. 2) remove the oil pipe banjo union plug at the bottom of the tank. The filter will come out with the plug. On models B31 and B33 it is preferable to remove the toolbox first. This is secured by three nuts and bolts, one through the mudguard valance and two through the short vertical strip on the chainstay. On swinging arm models (Fig. 2a) it is not necessary to unscrew the oil pipe union, the oil tank filter being attached to the large chromed drain plug screwed in the side of the tank. The supply pipe which will be seen when the drain plug is removed, draws its oil through the filter. The filter should be placed in a can large enough to cover it with petrol, and thoroughly washed. Before replacing make sure that it is quite dry of petrol.

The pump filter can be withdrawn after removing the

Plunger Models
Fig. 2





Swinging Arm Models Fig. 2a

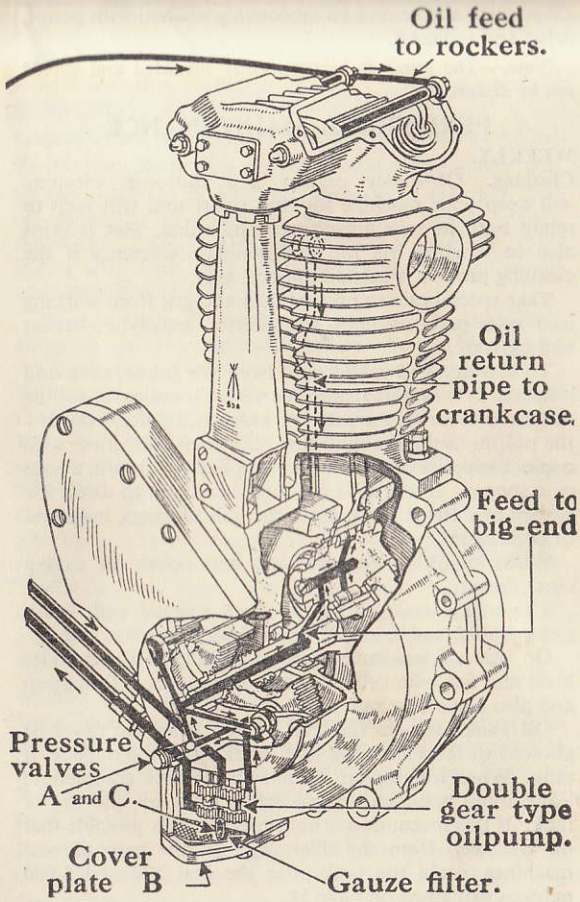


Diagram showing how oil is circulated from the tank throughout the engine and returned to the tank.

cover plate and should be thoroughly washed with petrol, dried and replaced.

Note.—The pump is independently mounted and should not be disturbed.

PERIODICAL MAINTENANCE

WEEKLY.

Cleaning. Obviously regular and thorough cleaning will keep your machine looking smart and will help to retain both its new appearance and value. But it helps also to lengthen its life and maintain efficiency if the cleaning process is carried out correctly.

Take special care to prevent dust and grit from working into such parts as hubs, carburetter, magdyno, brakes and gearbox.

To rub dry and caked mud from the frame, tank and mudguards means that the enamel on these parts will be subjected to an abrasive action which will quickly destroy the polish. Soak the mud first, and then float it off with copious supplies of clean water supplied either with a hose or a sponge. If a hose is used, take care not to direct the stream of water directly on to the hub bearings, magdyno or carburetter.

When all dirt is removed dry and polish off with a clean duster.

The engine and gearbox are best cleaned with brush and paraffin, and dried off when clean with clean rag.

On Iron engines an occasional coating of the cylinder head and fins with cylinder paint prevents rust formation and also helps heat radiation.

Oil Tank. Inspect the level of oil. It should never be allowed to fall below the level marked on the outside of tank. When topping-up, do not fill the tank completely; leave about one-inch margin between the oil and top of tank. If this precaution is not observed, it is possible that oil will seep from the filler cap. In the case of new machines, drain the tank after the first 500 and 1,000 miles as explained on page 18.

Tyres. Examine carefully for cuts and remove any flints or metallic scraps which may have become embedded in the cover. Check the pressures with a gauge, and inflate to correct pressure if necessary. (See pages 3 and 4.)

Steering Head. Give two or three strokes of the grease gun.

Brake Pedal. Give two or three drops of oil occasionally.

Rear Suspension. (Plunger Type). A few strokes of the grease gun.

Control Joints and Exposed Cables. A few drops of oil.

Saddle Nose Bolt. One or two strokes of the grease gun.

Battery. Top-up as often as necessary to maintain level of electrolyte one-quarter inch above top of plates. ALWAYS USE DISTILLED WATER WHEN TOPPING UP. This can be obtained cheaply at any garage or chemist's shop (see page 62).

To gain access to the battery on machines fitted with swinging arm rear suspension, remove the two bolts under the dual seat at the rear. The seat can then be drawn backwards out of its front locating grooves and clear of the machine revealing the battery. Remove the two small bolts holding the battery strap over the battery and unscrew the battery terminals. The battery can then be lifted out.

Gearbox. Examine oil level and top up if necessary. The oil is added through the filler cap aperture on the right hand side of the box, the hole acting as a predetermined oil level. On Comp and Swinging Arm models the gearbox is fitted with a level plug, see K, Fig. 13. In the case of new machines, drain the gearbox after the first 500 miles as explained on page 19.

EVERY 1,000 MILES.

Hubs. Inject grease through the nipple in the centre of the hub. Do not over-lubricate as grease may be forced on to the brake linings and cause ineffective brakes. Three or four strokes of the grease gun should be ample. **Do not lubricate with oil.**

Steering Head. Lift machine and place a box under the crankcase so that front wheel is clear of the ground.

Test for play in the steering head by trying up-and-down movement. Check also that steering is free (i.e., that the ball race adjustment is not too close.) If necessary, adjust as explained on page 24.

Brake Cam Spindles. A few drops of oil is all that is required. (8 in. Front Brake (nipple) one stroke of grease gun.)

Tappet Adjustment (for Gold Star models see page 50). Check when engine is cold. The correct method of checking and adjusting tappets is explained on page 25.

koppling **Clutch.** A few strokes of the grease gun at F (Fig. 11) will ensure free movement of the control arm. There should be a slight amount of play in the clutch control arm on the gearbox—or a short length of free cable at the handlebar lever end. If the play becomes excessive difficulty will be experienced in changing gear, as the clutch may not fully disengage, in which case the control arm should be adjusted as explained on page 28.

Chains. Check that there is not more than half-an-inch up-and-down movement at the centre of the primary chain and not more than three-quarters of an inch in the case of the rear chain fitted to Comp. or plunger frames (one-and-a-quarter inch for swinging arm models). If excessive adjust as explained on pages 30 to 32.

EVERY 2,000 MILES.

Oil Tank. Drain out the old oil (preferably after a run while the engine is still warm), wash out with flushing oil or thin machine oil—NOT paraffin or petrol—and refill with new oil. Wash filter thoroughly in petrol or paraffin and make sure that it is absolutely dry before replacing.

Oil Pump Filter. Remove the plate below the oil pump and wash the gauze filter in paraffin; dry and replace.

Dynamo and Magneto. See Electrical Section pages 63, 64.

Magdyno Fixing. Slacken off the magdyno strap and pull the magdyno towards the nearside of the machine—i.e., away from the timing cover. This ensures that the oil seal is maintained between the magdyno pinion and the felt washer. Holding the unit in this position re-tighten the magdyno strap bolt.

Primary Chain Oilbath. Drain, and replenish with new oil to level of plug at side of case behind brake pedal.

On Comp. models and machines fitted with swinging arm suspension the oilbath is slightly larger. Two red painted cover fixing screws (*A* and *B*, Fig. 3) are provided They

are the level indicator and drain screws respectively. The oil level should be determined with the machine on level ground off the stand. Do not fill above this level or clutch slip may occur.

Brake Fulcrum Pin. (7″ brakes only). Check tightness of locking nut on brake cover plate.

Central Stand Fulcrum. Give one or two strokes of the grease gun.

Gearbox. Remove drain plug at bottom of gearbox and drain out old oil. Wash out gearbox with flushing oil and refill with new oil to level of filler plug. On swinging arm machines the gearbox is fitted with a level plug (see K, Fig. 13).

Chains. Remove both chains, clean thoroughly in petrol or paraffin, and then gently warm in a mixture of grease and graphite. When cool, wipe off the excess grease, clean the sprockets and replace the chain. Remember that when replacing a chain fitted with a detachable connecting link that the spring fastener must always be fitted with the closed end facing the forward direction of travel (i.e., on the top run) of the chain.

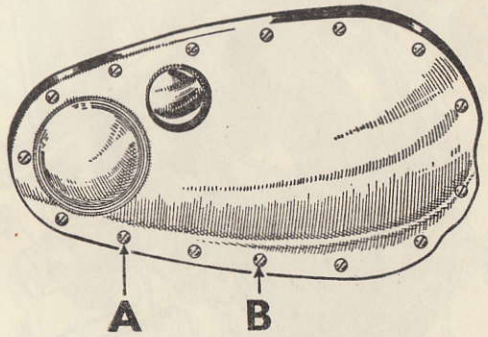


Fig. 3. *Primary Chain Oilbath* (*Comp. and Swinging Arm models*)

ADJUSTMENTS CALLED FOR IN THE PREVIOUS SECTION

Front Hub. This is fitted with ball journal bearings and adjustment is not necessary. The only attention required is periodical grease gun lubrication as described on page 17.

Removal of Front Wheel (7 in. Brake only). To remove the front wheel from the forks, detach the brake cable, and then slacken the pinch bolt *A* (Fig. 4) at the front of the nearside fork end. Insert a tommy bar in the hole in the spindle end *B* and unscrew. Note that the spindle has a left hand thread and unscrews when turned in a clockwise direction. It can then be withdrawn, and by sliding bush *C* in the fork end outwards to its fullest extent, the wheel will drop out.

Following the replacement of the spindle and before pinch bolt *A* is tightened, the forks must be depressed

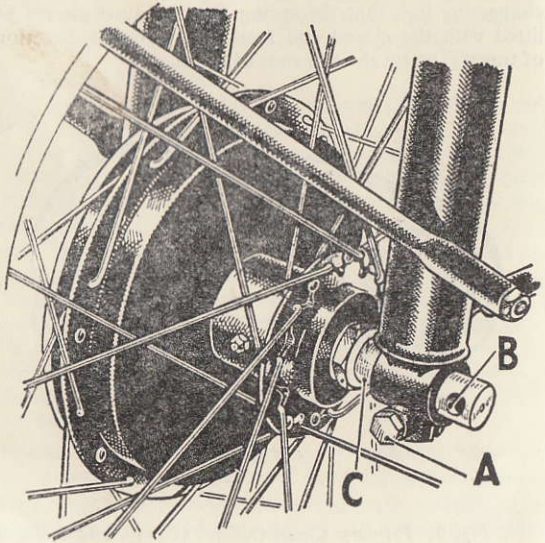


Fig. 4. Removal of front wheel

sharply once or twice to enable the nearside fork end to align itself on the bush *C*. If this precaution is not observed, the fork leg may be clipped out of position and will not function correctly. Do not forget to tighten the bolt *A*. (For removal of front wheel with 8 in. brake see page 60 in Gold Star Section.)

Forks. There is no adjustment provided for the telescopic forks and the only maintenance likely to be required, apart from the routine check on the tightness of nuts and bolts, is attention to the oil level in the hydraulic damping system. If, after considerable mileage, the forks appear to develop excessive up and down movement, it may be an indication that the oil supply requires replenishing.

To do this remove the large hexagon headed cap *A* (Fig. 5) at the top of each fork leg and also the small drain plugs shown in Fig. 6. After all the oil has drained out of each

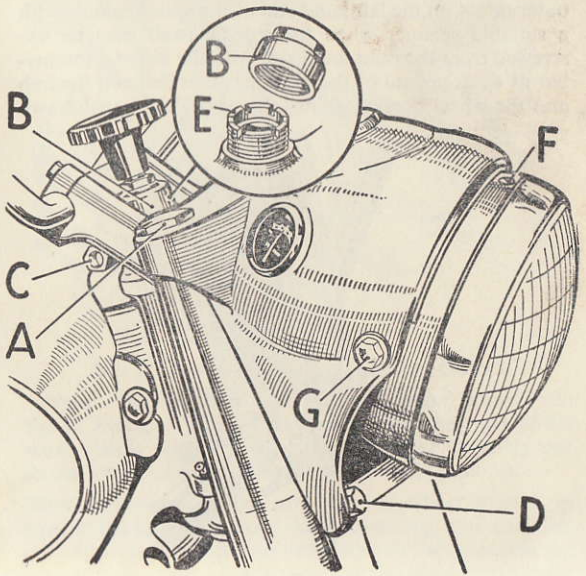


Fig. 5. Front fork and steering head

142 c.c. ? olja i varje ben

leg, replace the drain plugs and refill to the correct level, B31, B33, 5 fl. oz. (142 c.c.) of oil in **each** leg. B32, B34 Competition and Gold Star, 7½ fl. oz. (213 c.c.) in **each** leg. **On no account must the fork legs be filled right up to the top or the forks will be unable to function.** The correct grades of oil for both types of telescopic forks are given in the lubrication chart on page 36.

Removal of the Rear Wheel (Plunger Spring Frame, Fig. 7). The rear wheel is of the quickly-detachable type. As it is fitted with ball journal bearings adjustment is not necessary. To remove the wheel place the machine on its stand. On machines fitted with touring mudguards first slacken the nuts at the slotted fixing stay ends disconnect the rear lamp by means of the special coupling, when the rear portion of the guard can be lifted upwards on its hinge clear of the wheel.

To remove the wheel it is necessary first to hold the outer nut *A* on the left hand end of the wheel spindle with a suitable spanner when the spindle itself may be unscrewed from the right hand side with the aid of a tommy-bar at *C*. Removal of the distance piece between the hub and the wheel bracket allows the wheel to be withdrawn

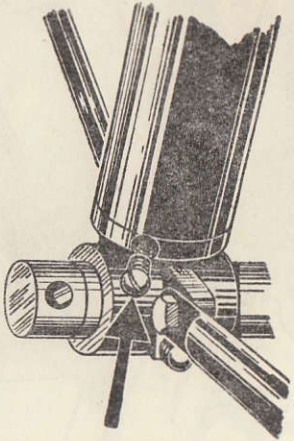


Fig. 6. Front Fork Drain Plug

sideways from its driving splines, when it can be taken out rearwards.

Rear Wheel Removal (Comp. and Swinging Arm models). This is quickly detachable, is fitted with ball journal bearings and therefore no adjustment is necessary. To remove the wheel, place the machine on its stand, insert a tommy bar in the spindle end *B*, Fig. 8, and unscrew in an anti-clockwise direction until it can be withdrawn. The distance piece *E* can then be removed and the wheel withdrawn sideways from its driving splines, when it can be taken out downwards and rearwards.

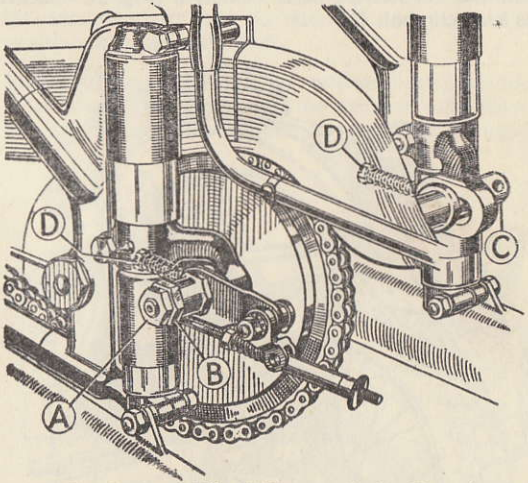


Fig. 7. Rear Wheel (Plunger Spring Frame)

Note. The large nut (B, Fig. 7, plunger frame), (A, Fig. 8. Swinging Arm Frame) on the left hand end of the wheel spindle retains the whole of the brake assembly and should not be disturbed for purpose of wheel removal.

Wheel Alignment. Make sure that the wheel is hard up against the adjusting stops when checking, and also that the adjustment is equal on both sides of the wheel (in the case of spring frame models) so that the latter is in correct

alignment in the frame. Adjustment is preferably carried out with the aid of a straight edge placed along the sides of the wheels. In the case of machines fitted with tyres of the same size on front and rear wheels, the straight edge should touch both sides of both tyres. If the front tyre is of a smaller section than the rear, due allowance will have to be made for this.

Steering Head. It is first necessary to raise the front wheel clear of the ground—a block or box under the crankcase is the best method. Unscrew the damper knob, with stem and the steering head locknut *B* (Fig. 5). Slacken the head clip bolt *C*.

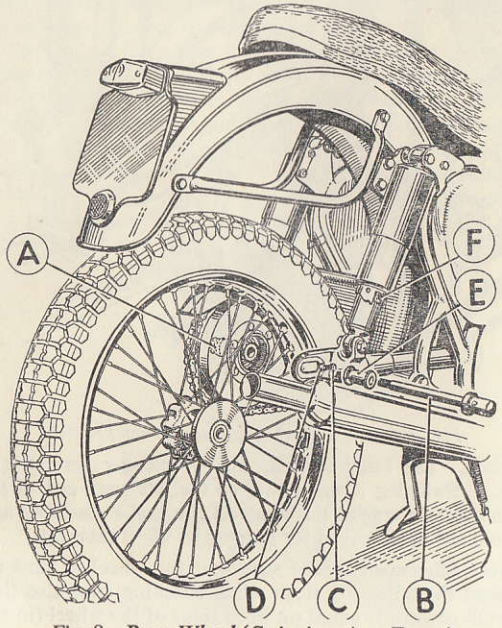


Fig. 8. Rear Wheel (Swinging Arm Frame)

Tighten the adjusting sleeve *E* until the slackness i.e. up and down play has been taken up. Do not overtighten or steering will be stiff and the ball races may be damaged. After adjustment is completed tighten the clip bolt *C*, and the steering head locknut *B*.

Exhaust Valve Lifter. The exhaust valve lifter cam must always be well clear of the rocker arm (see Fig. 9), otherwise the engine will be noisy and the tappet clearances seriously affected. Failure to check that there is clearance at this point may result in a badly burnt exhaust valve. Adjustment is usually carried out by means of the cable adjuster screwed into the exhaust rocker box cover, but the actuating arm can be removed and reset to any position on its serrated shaft.

Tappet Adjustment. Before any attempt is made to adjust valve clearances, verify that the exhaust valve lifter is correctly adjusted as explained in the previous paragraph.

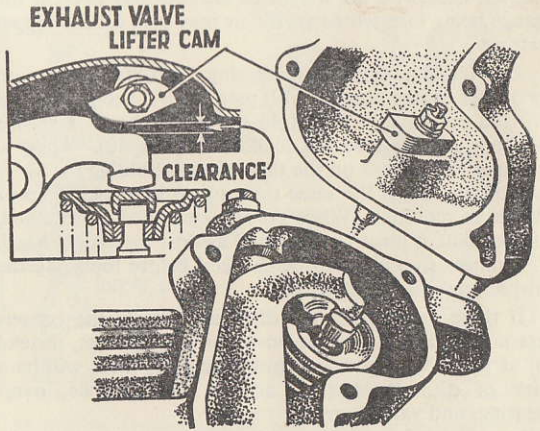


Fig. 9. Exhaust valve lifter adjustment
(Valve stem caps are fitted to B31 only)

To check and adjust valve clearances, it is most essential, owing to the special design of the cam form (see Fig. 10), to adhere to the following procedure. Remove the inspection cover at the top and the tappet cover at the base of the pushrod cover tube.

Rotate engine forward until the inlet valve has just closed (i.e., the tappet is just free to rotate). This is the correct position for checking and adjusting the exhaust valve clearance.

Turn engine forward again until the exhaust valve clearance is just taken up, but before valve actually starts to lift. This is the correct position for checking and adjusting the inlet valve clearance.

Both inlet and exhaust clearances are .003 in. except in the case of Gold Stars. (See page 50.)

It is advisable, before inserting a feeler gauge between the lower push rod end and tappet end to check the clearance on the engine, to lift the push rod with the fingers, otherwise the weight of the rod may prevent the gauge being inserted correctly, or may give a false tappet setting.

The actual adjustment (excepting Gold Star engines on and after engine number with prefix 'CB'. See page 50) is carried out as follows. Hold the tappet head *A* with a spanner, and release the locknut *B* (Fig. 10). Apply a spanner to the flats on the tappet stem, holding the latter stationary and at the same time adjust the head *A* up or down as required. When correct clearance is obtained, the locknut *B* must be tightened against the tappet head. Clearances should again be checked before replacing the inspection and tappet covers.

If these instructions are disregarded, and the tappets are adjusted at any other positions of the cams, instead of at the precise positions just described, there will be a risk of difficult starting, adverse performance, overheating, and valve burning.

Tappet adjustment should always be carried out with the engine dead cold, and the clearances recommended above regarded as a minimum, especially in the case of the exhaust valve.

ventilspel → 0,0762 mm

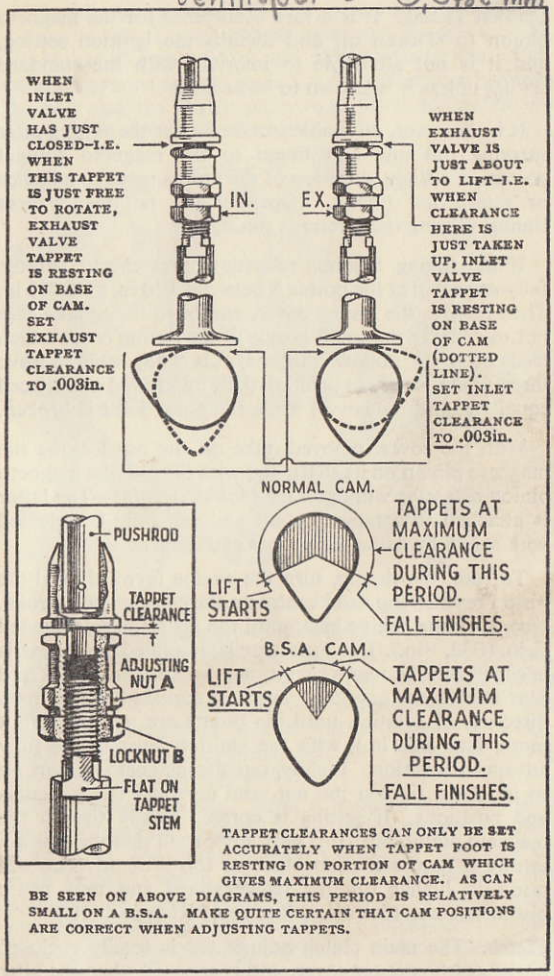


Fig. 10. Tappet adjustment

Ignition Timing. It is a rare occurrence for the magneto pinion to slacken off and disturb the ignition setting, and it is not advisable to interfere with the standard setting unless it is known to be at fault.

It is, however, advisable to check over the timing after carrying out any adjustment to the magneto contact points, as a slight variation of the points tends to advance or retard the timing. (Opening the points advances timing, closing them retards timing.)

If the timing requires re-setting, first check that the fully-open gap at the points is between .010 in. and .012 in. Then remove the timing cover, and in so doing take care not to damage the small nozzle in the timing cover which feeds oil to the hollow crankshaft. It is advisable to leave three fixing screws in position (half unscrewed and spaced equally round the cover) while the cover joint is broken.

With the cover removed, take off the nut locking the magneto pinion on its shaft, and with the aid of a magneto pinion extractor withdraw the pinion. (Note:—The latter is attached to a tapered shaft and can only be released with safety by using the proper extractor.)

To reset the timing, turn the engine forward until the piston reaches top dead centre on the compression stroke. Now turn the engine back until the piston has descended $\frac{7}{16}$ in. (B33, in.). This operation is simplified if top gear is engaged and the rear wheel turned backwards. (For Gold Star models see page 53.) Turn the contact breaker in its direction of rotation until the points are just open (not more than .002 in.), with the ignition lever in the fully advanced position. Lightly tap the magneto pinion on to its shaft, tighten the nut, and carefully check figures and positions. If setting is correct, finally tighten the magneto pinion nut. It is most important that the ignition setting is accurate. Too much or too little advance will result in higher running temperatures and may cause piston seizure. (See also Magdyno Fixing page 18.)

Clutch. The main clutch adjustment is totally enclosed in the gearbox outer cover, and is exposed when the filler cap is removed.

The adjusting screw *B*, Fig. 11, is locked in position by the nut *A*. For Comp. and swinging arm models see Fig. 13, *H* and *G* respectively, and after releasing the latter, adjust the screw so that there is a little clearance between the ball and the clutch push rod. Then re-tighten the locknut and replace the filler plug.

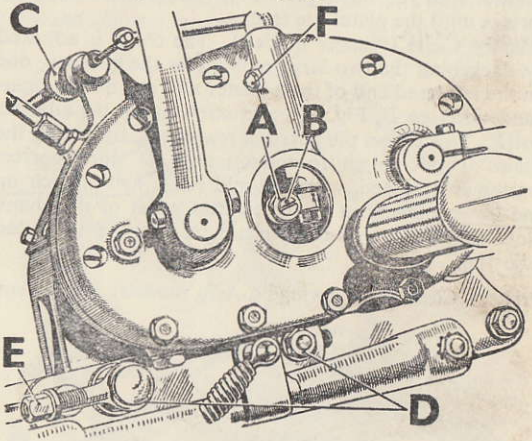


Fig. 11. Clutch and front chain adjustment

Further adjustment is provided by the knurled thumb nut *C* (*E* on Comp. and Swinging Arm), on top of the gearbox. Remember, however, that some free movement in the control arm is necessary, as if the adjustment is too close there will be constant pressure on the clutch, with consequent wear and loss of efficiency. (For Gold Star Racing see Handlebar levers, page 57.)

Clutch Spring Pressure. After a considerable mileage it may be desirable to increase the spring pressurel a little. First, drain the Primary chain oilbath as explained on page 18 and remove the outer half of the oilbath thus exposing the clutch. It will be seen that the clutch plates are compressed together by springs, the pressure of which is controlled by the nuts *B* (Fig. 12) and locknuts *A*. To increase the spring pressure, release the locknuts and tighten the nuts *B* slightly. It is important that each of

the six adjusting nuts are tightened equally to ensure even pressure, otherwise the plates will slide unevenly and clutch drag will result. After the adjustment is completed, depress the clutch lever and spin the clutch by operating the kickstarter, when the outer plate should be seen to revolve parallel with the other plates. If not, adjust individual springs until the plates are true.

Primary Chain (Plunger models). The chain is adjusted by slackening the two large nuts under the gearbox, one on the left hand end of the adjuster and one on the right-hand side (see *D*, Fig. 11), and screwing up the adjuster nut *E*. This draws the gearbox rearwards, tightening the chain. Don't forget to tighten nuts *D* when correct tension is obtained, which should allow half-an-inch up and down movement at the tightest point of the chain. Note that after tightening chain, rear chain will need adjusting.

Primary Chain (with Swinging Arm models). The chain

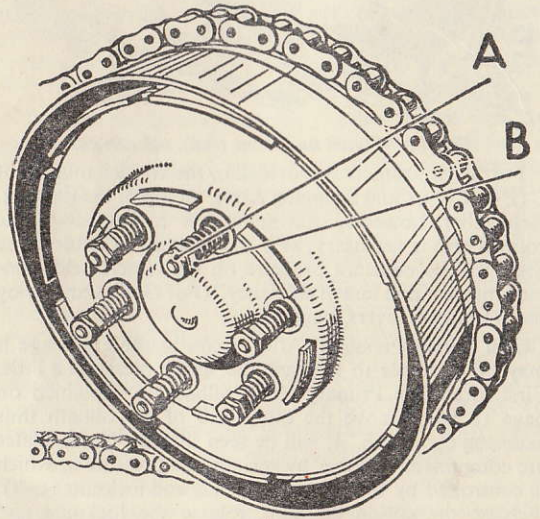


Fig. 12. *Clutch spring adjustment*

is adjusted by pivoting the actual gearbox backwards or forwards about its lower fixing bolt *A*, Fig. 13. This operation is carried out as follows:—

Slacken the two large nuts *A* and *B* which lock the gearbox in position. One of these nuts is immediately under, and the other vertically above the gearbox. The latter *B* also holds the adjuster in position.

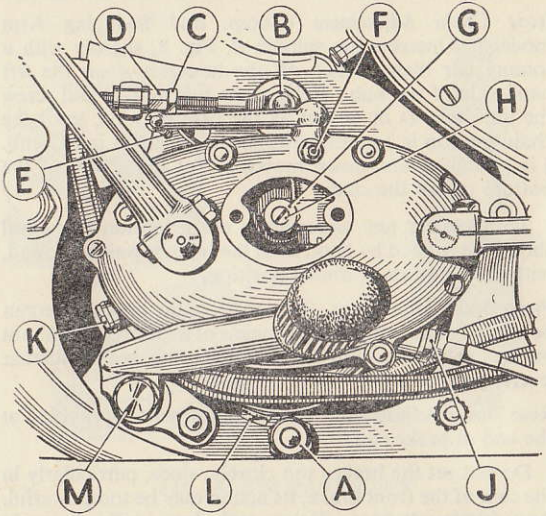


Fig. 13. *Clutch and front chain adjustment* (*swinging arm models only*)

Release the locknut *C* on the adjuster and screw the actual adjuster nut *D* in a downwards direction, this will draw the gearbox backwards, tightening the chain. There should not be less than a total of half-an-inch up and down movement in the centre at the tightest point of the chain.

Finally, retighten the adjuster locknut *C* and the two large gearbox fixing nuts *A* and *B*. Note that after tightening this chain the rear chain will need checking.

Rear Chain Adjustment (plunger spring frame). **Fig. 7).** Hold the hexagon *A* with a suitable spanner and unscrew

the spindle slightly by means of a tommy bar at *C*. Slacken off the hexagon *B* on the left-hand side of the hub then screw the adjusters *D* in or out as the case may be, until the chain tension is correct, with not less than ½ in. total up-and-down movement, at the centre of the bottom run of the chain with the machine on its central stand, so that the rear wheel is in its lowest position.

Rear Chain Adjustment (Comp. and Swinging Arm models). Unscrew the spindle *B*, Fig. 8, slightly with a tommy bar then slacken off the hexagon *A* on the left hand side of the hub. Release the locknuts *C* and screw the adjusters *D* in or out as the case may be, until the chain tension is correct, with not less than 1¼ in. (Comp. ½ in.) total up-and-down movement at the centre of the bottom run of the chain.

To allow for any variation in chain tension the wheel should be rotated by hand until the tightest point is found, with the wheel in its lowest position.

Front Brake Adjustment. The length of the brake cable can be altered at its lower end by means of a knurled thumbnut on the cable stop. (For Gold Star Racing, see Handlebar levers, page 57.)

Rear Brake Adjustment. Finger adjustment is provided at the end of brake rod.

Do not set the brakes too closely, since, particularly in the case of the front brake, its action may be too powerful. Any friction between lining and drum will obviously impair the machine's performance. In addition, if carried to extremes, the heat may melt the grease in the hubs and this may find its way to the brake linings. (For lubrication see page 16.)

Centralising (7in. Brakes only). Slacken the nut on the brake cover plate, thus loosening the fulcrum pin in its slotted hole. Apply brake, when fulcrum pin will automatically centralise the assembly, and keeping the brake on, finally lock up the nut. (See also page 19.)

Brake Cam Spindles. These are lubricated with oil see page 18.

Sparking Plugs. The sparking plug is of great importance in satisfactory engine performance, and every care should be taken to fit the correct type when replacements are necessary. There is little to be gained by experimenting with different plugs as the make and type fitted by us as official factory equipment is best suited to the requirements of the motor. This is Champion Type No. L10S (Competition models NA8. Gold Stars, see page 56).

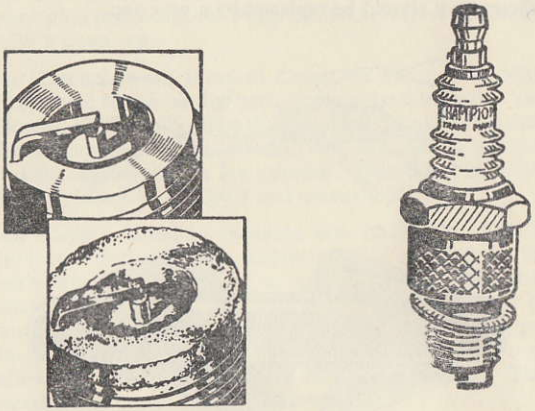


Fig. 14. *The sparking plug*

Remove each sparking plug every 1,000 miles (1,500 km.) or so for inspection. If the carburation system is in correct adjustment the sparking plug points should remain clean almost indefinitely. An over-rich mixture from the carburetter will, however, cause the formation of a sooty deposit on the points, and, later, on the plug end face (as upper view, Fig. 14). If therefore such a deposit is found, clean it off carefully and check your carburetter.

The continued use of leaded fuel may also eventually produce a deposit on the plug—this time of a greyish colour.

A light deposit due to any of these causes can easily be cleaned off, but if it is allowed to accumulate, particularly inside the body, the plug may spark internally with an adverse effect on engine performance—if, indeed, it does not stop the engine altogether. The plugs should be cleaned and tested at regular intervals, and it is suggested that this service be performed at your garage on a special 'Air Blast' service unit. If eventually the cleaning process fails to restore the plug to its original condition of efficiency, it should be replaced by a new one.

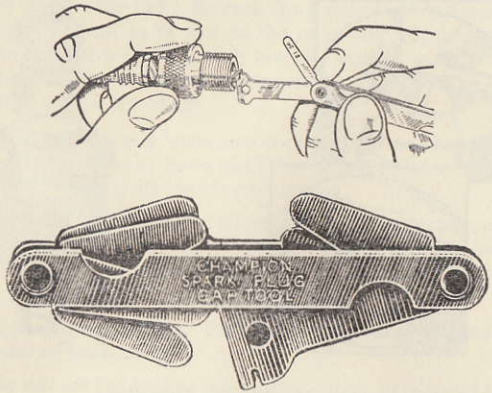


Fig. 15. *Setting the plug points*

When inspecting a plug, also check the gap between the points. This should be .018-.020 in. (.45-.50 mm.) and adjustment should be made by bending the side wire (see Fig. 15). **Never attempt to move the centre electrode,** and it is always advisable to use the special plug gap tool illustrated, obtainable at 2/- from any Champion Plug stockist or from the Champion Sparking Plug Co. Ltd., Feltham, Middlesex. Feeler gauges are attached to verify correct gap.

When refitting a plug, make sure that the copper washer

0,45 - 50

is not defective in any way. If it has become worn and flattened, fit a new one to ensure a gastight joint.

Screw the plug down by hand as far as possible, then use a spanner for tightening only. Always use a tubular box spanner to avoid possible fracture of the insulator and do not in any circumstances use an adjustable spanner

Paint splashes, accumulation of grime and dust, etc., on the top half of the insulator are often responsible for poor plug performance. Plugs should be wiped frequently with a clean rag.

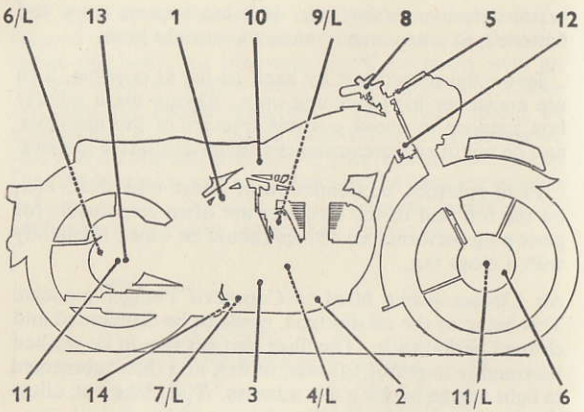
Air Cleaner (when fitted to Comp. or Plunger models). This being of the oil dip type, needs to be dismantled and cleaned periodically. The filter element should be washed thoroughly in petrol, allowed to dry, and then submerged in light engine oil for a few minutes. Then take out, allow the surplus oil to drain off and reassemble.

Air Cleaner (fitted to swinging arm machines). This is in front of the battery carrier, and is coupled to the carburetter by means of a rubber elbow. The filter element must be removed periodically when it should be washed thoroughly in petrol, dried, and then submerged in thin oil (SAE20) for a few minutes. Then take out, allow the surplus oil to drain off and reassemble. This operation is carried out as follows:—

The Cleaner cover is attached by two screws in elongated slots, the lower to the frame member below the seat and the other to the battery strap. The rubber connection to the carburetter should be left in position on the carburetter inlet stub and slipped off the cleaner cover.

The filter is held in the cleaner cover by a wire circlip. **Note:** The domed surface of the perforated retaining disc must be replaced upwards.

Cylinder Head. After the machine has covered its first 250 miles from new or after decarbonising, check the tightness of the cylinder head bolts. If they need to be tightened work in diagonal order to ensure that the head is tightened evenly, otherwise distortion may result.



KEY LUBRICATION POINTS
(L indicates left hand side, remainder right hand or both sides.)

RECOMMENDED LUBRICANTS

OILS Engine, Gearbox, Front Forks			COMP. & G. STAR FRONT FORKS ONLY	GREASE
Brand	Summer	Winter		
Mobiloil	D	A	Arctic	Mobilgrease No. 2
Shell	X100-50	X100-30	X100-20	Retinax A or CD
Castrol	Grand Prix	XL	Castrolite	Castrolease Heavy
Esso	50	30	20	Essogrease
B.P. Energol	SAE 50	SAE 30	SAE 20	Energrease C3

FOR OVERSEAS. Recommendations as above if obtainable. If not the following rule should be observed:—The Higher the Temperature the Higher is the S.A.E. Number required.

(Engine Gearbox) Summer 50
(and Front Forks) Winter S.A.E. 40—20
Front Forks (Comp. and G. Star only) S.A.E. 20 (see page 21)

WEEKLY LUBRICATION

Ref.	GREASE	Page	Ref.	OIL	Page
12	Steering Head	17	1	Oil Tank	16
10	Saddle Nose Bolt (except dual seat)	17	3	Gearbox	17
13	Plunger Rear Suspension only	17	7	Brake Pedal	17
			8	Control Joints	17
			—	Exposed Cables	17

LUBRICATION EVERY 1,000 MILES

Ref.	GREASE	Page	Ref.	OIL	Page
11	Hubs	17	6	(7in. Brake) Cam Spindles	18
—	Clutch Control Arm	18			
6	(8 in. F. Brake) Cam Spindles	18			

LUBRICATION EVERY 2,000 MILES

Ref.	GREASE	Page	Ref.	OIL	Page
14	Central Stand	18	1	Oil Tank	18
			3	Gearbox	19
			4	Oilbath	18
			9	Magneto	18
				Rear Chain	18

SPECIAL NOTES

Examine Engine Pressure Valve at 1,000 miles. (*See* 'A' *page 15*)
1 and 2. Clean Oil Tank and Crankcase Filters at 2,000 miles.
1 and 3. Drain and Refill Oil Tank and Gearbox at 2,000 miles.
5. Check Front Fork Oil Level at 10,000 miles.

Carburetter. So long as the engine continues to perform satisfactorily, the carburetter is best left alone, particularly by the experienced rider. The only adjustment in which the owner is likely to be interested is the pilot air screw (Fig. 16a), (Fig. 16b 'Monobloc') which controls the slow running mixture. This is set before the machine leaves the works, but the best setting may vary slightly to suit rider's requirements, or different localities.

Turning the pilot air screw inwards enriches the mixture and unscrewing weakens it. A richer mixture gives a slower and more reliable tick-over, but it is naturally undesirable to have the mixture too rich, even with the throttle practically closed—which is, of course, the throttle position for tick-over—so the best way to set the pilot air screw is to screw it in until the mixture is obviously too rich, and then unscrew it until the setting is just right, and further unscrewing increases the tick-over speed unduly. This may seem complicated, but the effect of altering the setting is very noticeable, and the rider will easily detect the symptoms.

It is doubly important to avoid over-richness of the tick-over setting if much riding is done on small throttle openings for this is what is known as 'running on the pilot' and if the pilot setting is too rich, the general petrol consumption will be adversely affected.

The running mixture can only be altered by adjusting the height of the needle in the throttle valve or by fitting a main jet of different size. Such alterations should not be made except for very special purposes, as dictated by abnormal requirements and only then on expert advice.

DECARBONISING THE ENGINE

Decarbonising and 'top overhaul' of an engine is extremely simple, **but it should only be carried out when the engine really needs it.** The usual symptoms are an increased tendency to 'pink' (a metallic knocking when under heavy load) due to the building-up of carbon on the top of the piston and inside of cylinder head; a general falling-off of power noticeable mainly on hills, and the engine inclined to run hotter than usual. Before commencing general dismantling, rotate the engine until

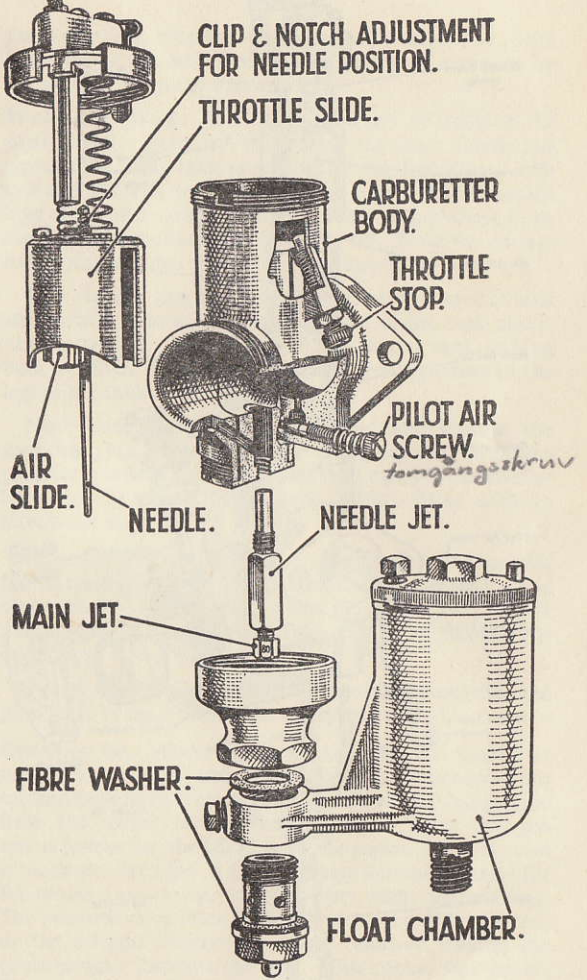


Fig. 16a. The standard carburetter

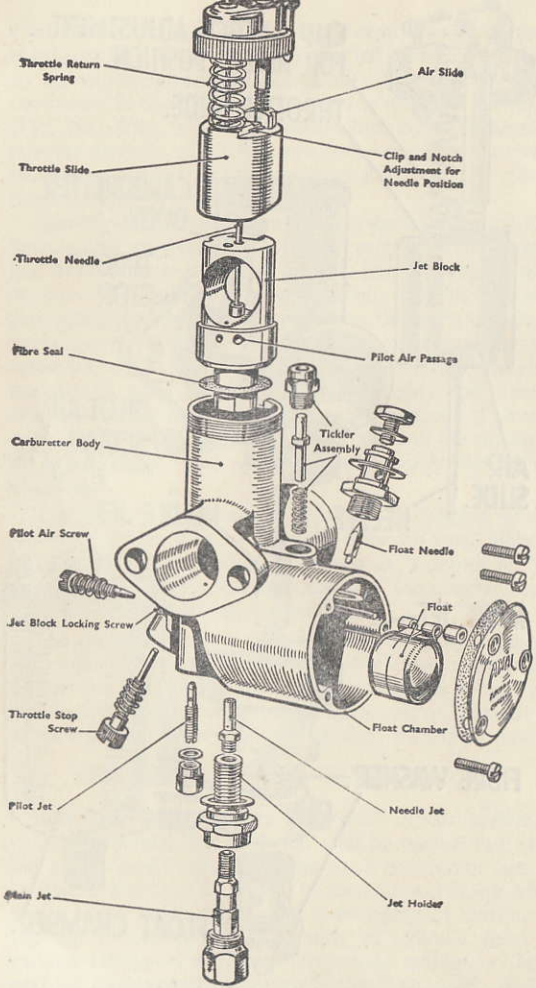


Fig. 16b. 'Monobloc' carburetter

the piston is at t.d.c. on the compression stroke, i.e., with both valves closed. This will prevent any pressure on the valves during the operation.

Preliminary Work. It is first necessary to remove the petrol tank. Turn off the petrol tap and detach the petrol pipe. The tank is secured to the frame by a bolt through the steering head lug and two bolts to special lugs at the rear of the frame top tube. When these bolts are removed the tank can be taken off. Note the correct order of the rubber mountings for reassembly purposes.

On swinging arm models. First remove the petrol tank strap which is located under the front of the tank and is held in position by two nuts. The central tank locking bolt can then be removed when the rubber cover in the top of the tank is pulled off.

Next detach the high tension lead and remove the sparking plug. Disconnect the steadying stay from the cylinder head to the frame, and then take off carburetter by removing the air flange nuts. (When fitted with an air-cleaner see page 35.)

By unscrewing the ring nut at the top of the carburetter the slides can be pulled right out and tied to the frame top tube out of the way, while the main body of the instrument can be removed. Take care not to damage the carburetter flange washer.

The pipe and silencer can be removed complete, the pipe itself being a push fit in the cylinder head.

Removing the Cylinder Head. (For Comp. and Gold Star models see pages 48 and 50 respectively). Disconnect the oil feed pipe to the rocker spindles and the oil return pipe from the rocker box to the crankcase. Note that the union screws for the oil pipe to the rocker spindles have a much smaller hole in the side than the union screw for the return pipe—a point to remember when reassembling. The exhaust valve lifter cable can either be disconnected, or the exhaust rocker box cover removed leaving the cable intact. Remove the inlet valve rocker box cover. Slacken the castellated gland nut securing the push-rod cover tube to the cylinder head (using the special '*C*'

spanner provided in the toolkit for this purpose). Detach the inspection cover at the top and tappet cover at the base of the tube and undo the two acorn nuts clamping the base of the tube to the crankcase.

Lastly unscrew the four long bolts holding the cylinder head and barrel to the crankcase, applying the spanner to the top, or smaller diameter, hexagon. The larger diameter hexagon screws the bolt sockets into the crankcase and should not be touched unless it becomes necessary to replace a holding down bolt, when the complete assembly of bolt and socket must be fitted.

The cylinder head, complete with push-rod cover tube, should now be raised a little to enable the push-rods to be lifted off the tappets and lowered to the crankcase face. The head and push-rod cover tube can now be lifted upwards and forwards clear of the barrel. Note that the head has a plain ground joint at the barrel—no gasket is used on standard iron engines. If the head shows a tendency to stick, a few light taps with a wooden mallet under the exhaust port will loosen it. With the head clear of the machine the push-rod cover tube can be detached.

All traces of carbon must be cleaned from the cylinder head (i.e., combustion chamber, ports, etc.), using an old knife or similar tool. Take care not to damage the piston crown.

Grinding-in Valves. It is not essential to remove the rockers in order to take out the valves and springs, but if it is decided to strip the head completely, it is only necessary to undo the acorn nuts on the rocker spindles and tap these out, preferably using a small copper or aluminium punch so as not to damage the threads on the spindle ends.

Careful note should be kept of the rocker assembly for replacement—the spring, followed by the steel washer, and finally the aluminium oil seal washer.

To remove the valves place a wooden block, which will fit inside the cylinder head, on a bench, and then lay the head on to the block with valve heads resting on it. Lift off the hardened end caps from the valve ends (B31

only). Compress the valve springs until the split collets can be lifted out. When the collets are out, valve springs and top collar can be removed.

Valve grinding should only be attempted if pitting is shallow. If deep pit marks appear, then the faces must be re-cut with proper equipment. The valve should be returned to your dealer for refacing, as attempts at grinding-in in this case will result in wear of the valve seats, and the valve may become pocketed, with consequent loss of efficiency.

Smear a small quantity of grinding compound (obtainable from any garage or accessory shop) over the face of the valve, and return the valve to its seat. A light spring inserted under the valve head greatly facilitates the grinding-in operation, allowing the valve to lift and be rotated to a new position periodically. Hold the valve stem with the special tool provided in the kit, and rotate the valve backwards and forwards whilst maintaining light pressure. The valve should be raised and turned to a new position after every few strokes. Grinding should be continued until the valve seat and face show a uniformly matt metallic surface all round. It is most important that valves should be ground in on their correct seats—both valves are marked, one 'IN' and the other 'EX'.

Should the valve seats be badly pitted, the head should be returned to your dealer for recutting, and this may necessitate the fitting of new valves.

Before replacing the valves and springs, all traces of grinding compound must be removed from both face and seat, and the valve stems smeared with engine oil.

Valve Springs. After a period of several thousand miles it may be desirable to renew the valve springs as these tend to lose their efficiency due to heat. If the springs are renewed whilst decarbonising, it will save dismantling specially to replace them at a later date.

Piston, Piston Rings. Whilst the engine is dismantled, it is advisable to examine the piston, rings and cylinder barrel. Lift the barrel upwards and forwards into the front angle of the frame, and as the piston emerges from the barrel it

should be steadied to prevent possible damage. When the barrel is removed, cover the mouth of the crankcase with rag to prevent rust and grit falling in. To remove the piston from the connecting rod it is first necessary to take out one of the gudgeon pin circlips. This is best accomplished with a pointed instrument such as the tang of a file suitably ground.

Before the gudgeon pin can be withdrawn it may be necessary, if the engine is cold, to heat the piston with the aid of rags immersed in hot water, wrung out, and held round the piston. Then, supporting the piston, tap the gudgeon pin through using a light hammer and a punch.

When the piston is free, mark the inside of the piston skirt at the back, so that it can be replaced the correct way round.

If the rings are stuck in the grooves great care will be needed to prise them free and to remove them from the piston. All carbon deposit should be carefully scraped from the grooves and the inside edges of the rings. If either of the rings shows brown patches on the face, replace with a new ring.

Check the piston ring gap by inserting the piston in the barrel and sliding each ring independently up to the skirt of the piston. Check the gap with feeler gauges, and this should not be less than .008 in. or more than .012 in. Fit new rings if the gap greatly exceeds the figure stated, although a few thousandths of an inch extra gap are not serious. It is advisable to check the gap of new rings before fitting, and if the gap is less than .008 in. the ends of the rings should be carefully filed to the correct limit.

It should be noted that piston rings are very brittle, and unless handled carefully are easily broken. This applies particularly to the scraper ring.

Re-assembling. When the rings are refitted, replace the piston on the connecting rod (see that it is the right way round), smear the gudgeon pin liberally with engine oil, and tap into position. Then refit the gudgeon pin circlip.

Smear the piston liberally with clean engine oil; turn the rings so that the gaps are on opposite sides of the piston; fit a **new cylinder** base washer on the crankcase;

liberally coat the inside of the cylinder barrel with clean engine oil and then, compressing the rings in turn by hand, carefully slide the barrel into position over the piston. This operation will be simplified if the piston rings are compressed into their grooves by means of metal bands, such as can be obtained from accessory suppliers.

Next replace the valves into their respective positions, place the springs over the stems with the top collar in position, and with the head resting on wooden block as before, compress the springs until the split collets can be inserted. A dab of grease on the inside of the collets will serve to hold them in position until the spring is released. Make quite sure that the collets are correctly located. (For Comp. and Gold Star models see pages 49 and 51 respectively).

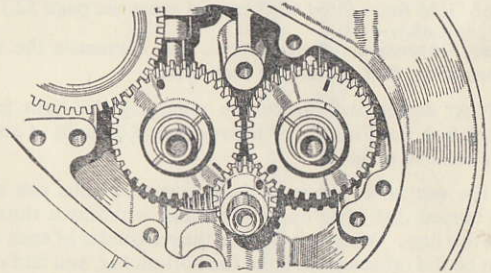


Fig. 17. Valve timing marks

Standard Iron B engines only. Insert the push-rod cover tube into position in the cylinder head but do not screw up the gland nut. Place the push-rods inside the tubes and then lift the cylinder head into position. It will be necessary to keep the head raised whilst the push-rods are positioned on the tappets, and then the rods must be correctly located on the rockers. Now lower the head into position, replace the acorn nuts securing the push-rod tube, and then screw up the long cylinder head and barrel bolts, working in diagonal order until they are dead tight. The push-rod gland nut can now be tightened up. Before replacing the inspection and tappet covers, check tappet adjustments which should give .003 in. clearance at both valves.

Connect up the oil feed and return pipes to the rockers and inlet rocker box. Replace engine steadying stay.

Replace the rocker box covers, the carburetter, the exhaust pipe and silencer, and finally, the petrol tank and petrol pipe. It is advisable to remove the sparking plug and clean it before replacing. (See page 34.) Check that the gap between the points is correct and adjust if necessary.

Valve Timing. If the pinions are removed for any reason note that the engine shaft pinion and cam pinions are marked to facilitate assembly. As the cams are interchangeable the timing marks are duplicated on both pinions. The 'dash' mark only is used for the inlet cam and the 'dot' for the exhaust cam (see Fig. 17). These instructions apply equally to Competition engines. (For Gold Stars fitted with special cams see page 52.)

Rear Suspension (Plunger type). To dismantle the rear suspension, first detach the rear wheel.

Next detach the silencer by removing the right hand pinch bolt (*A*, Fig. 18). Then release pinch bolts *A* and *B* and remove plugs *C*.

The central columns of the suspension units can then be tapped out from underneath and withdrawn through the top lugs. When this is done the remainder of each unit can be slid off sideways from the bottom lug, and laid on a bench for complete dismantling, which consists merely of taking the various pieces apart, carefully noting their respective positions for subsequent reassembly. The wheel spindle brackets which, together with the bearing sleeves to which they are attached, form the spring plungers, can be separated from the sleeves when the pinch bolts *D* are withdrawn. Note that each of these engages in a notch in its bearing sleeve and also that the bottom studs at *A* similarly engage in notches in the central columns. These are essential for correct engagement and locking, and particular attention must be paid to their proper alignment on reassembly.

Rear Suspension. (Swinging arm type). This suspension system incorporates two suspension units each comprising

a totally enclosed compression spring, and an automatic hydraulic damping device.

The hydraulic dampers are entirely self-contained, and require no maintenance whatsoever. These are correctly adjusted at the Works during manufacture, and call for no subsequent attention.

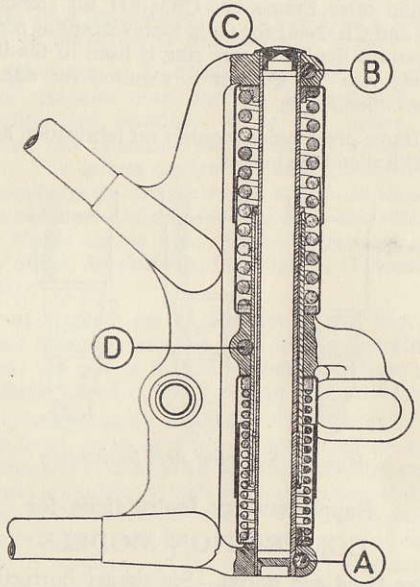


Fig. 18. *Rear Suspension Unit*

Adjustment. The springs fitted to the B.S.A. suspension units are adjustable for load, three positions being provided as seen in Fig. 19. When sent out the springs are normally set in the lowest position, as illustrated on the left. If it is felt that conditions call for slightly stiffer springing due to the rider's weight, or the nature of the ground, this can be arranged in a matter of seconds by using the Cee-spanners supplied in the toolkit in order to

turn the adjuster cams to the second position as shown in the middle illustration. A little thin oil on the cam faces will facilitate this operation. If a pillion passenger or luggage is carried it will be necessary to set the suspension units in the highest position, turning the cams to the third position as shown on the right.

On and after Frame no. CB31-871 for standard 'B' models and CB32-461 for Gold Stars (excepting scrambles specification) the lower cam ring is fixed to the body so that only one 'C' spanner is required for adjustment purposes. (See *F*, Fig. 8.)

The frame pivot point requires no lubrication as this is fitted with silentbloc bushes.

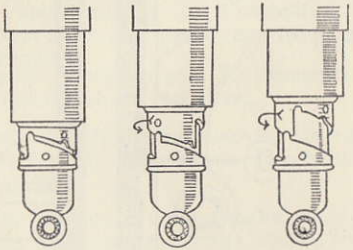


Fig. 19. *Swinging Arm Suspension*

Supplementary Instructions for COMPETITION MODELS

Cylinder Head and Barrel. See similar instructions for Gold Star engines, pages 49 to 53, except for references to engines with prefix letters 'C.B.' and the following items:

Crankpin. Standard crankpin and nuts and used for these models.

Valves. A special inner valve spring 65-1259 must be used with these valves. The outer spring is the standard 65–1147.

Valve Clearances and Compression Ratio. See Technical Data, page 4.

Supplementary Instructions for GOLD STAR MODELS

Cylinder Head and Barrel. The cylinder head and barrel on these models are in aluminium alloy, and the push rod tunnel forms part of the castings, instead of taking the form of a separate unit with castellated gland nut as used on the other 'B' models.

The valve seats in the cylinder head are of special heat resisting austenitic steel and are screwed and shrunk immovably into position. When the valves require regrinding this operation is carried out in the normal manner. The inserts cannot be removed and replaced conveniently by the private owner, and if this should ever become necessary, the cylinder head should be returned to B.S.A. Motor Cycles Ltd., Repair Department, Montgomery Street, Sparkbrook, Birmingham 11 (local dealer overseas).

The valve guides are of 'Hidurel 5', and high tensile phosphor bronze inserts are used for the sparking plug bush and the bushes for the cylinder attachment bolts. The cylinder barrel is fitted with an austenitic liner.

The cylinder head is attached to the barrel by means of eight bolts, seven of which pass through the cylinder barrel fins, while the eighth is situated inside the push rod tunnel and is easily accessible when the tappet cover plate is removed. Of these eight bolts,* four serve to attach the cylinder head and barrel to the crankcase, as in the case of other 'B' models, and the remaining* four are interspaced between these holding down bolts. (*Engines on and after engine number with prefix C.B.: five and three bolts respectively).

The cylinder head must be tightened down periodically, and in any case after the first 500 miles have been covered. In no circumstances must the eight bronze bushes in the head be interfered with, since these are screwed permanently into the cylinder head.

Whenever the tightness of the cylinder head bolts has been checked the tappet adjustment should be checked immediately afterwards as this may be affected.

Crankpin. The Gold Stars are fitted with special crankpins and nuts which must not be interchanged with standard components.

Valve Rockers. These are specially lightened and balanced for efficiency at high engine speeds.

Valves. The valves are made from a special heat resisting steel and are Stellite tipped. **In no circumstances should standard valves with end caps be substituted.** For safety fit a new exhaust valve at reasonable intervals.

Tappet Adjustment. Check the valve clearances when the engine is cold and follow the special procedure described on page 25.

Owing to the fact that the cylinder barrel and head are both of aluminium alloy, the effect of expansion is more marked than in the case of cast iron cylinders, with the result that valve clearance increases appreciably as the engine warms up.

In the case of engines on and after engine number with prefix 'CB' the actual adjustment is effected by means of eccentrics on the rocker spindles.

First disconnect the rocker oil feed pipe union nuts from the ends of the hollow rocker spindles. Then slacken the large 'acorn' nuts on the other ends of the rocker spindles. This will release the rocker spindles and each spindle can then be turned independently in either direction by means of the hexagon adjacent to its oil feed union, until the correct clearance is obtained. This is checked at the lower end of the push rod aperture in exactly the same manner as for standard 'B' engines.

Valve Clearances (with engine cold) see Table II:
Engine no. with prefix 'CB' .006 in. (both valves).
Engine no. with prefix 'BB' .008 in. (inlet), .010 in. (ex.).

REMOVAL OF CYLINDER HEAD

The head is removed with the rocker box in position without any special manipulation.

Having removed all the extraneous components, turn the engine over until the piston is at t.d.c. on the compression stroke (i.e. with both valves closed), which ensures that no pressure is imposed upon the valves

during the operation; then undo the nuts holding the inspection and tappet covers at the top and bottom of the push rod tunnel and remove them. Loosen the eight cylinder head holding down bolts, and as the inverted ones are released they will drop down a little, but they cannot be withdrawn unless the barrel itself is removed. When all the bolts are free of the threads lift the head upwards a little to clear the barrel spigot. Remove the two push rods and slide the complete head unit off sideways. The rocker box is separated from the head on the bench by undoing nine nuts.

Replacement of Cylinder Head. This is merely a reversal of the removal instructions. It should be stressed, however, that the rocker box **must** be fitted on to the head **before** it is replaced.

Cylinder Head Gasket. Examine this carefully for defects. If it is not sound and bright, but has black-stained patches, this may indicate blow or leakage of gas and a new gasket should be obtained.

Before tightening the fixing bolts the push rods **must** be located top and bottom on their rocker ball ends and tappet heads respectively. These operations are easily observed through the inspection and tappet apertures. All eight fixing bolts should be located in the head before finally tightening up.

Removal and Replacement of Cylinder Barrel. It should be noted that when reassembling cylinder head fixing bolts they must be inserted into position before the barrel is replaced on the crankcase. Do not forget the bolt inside the push rod tunnel when carrying out this operation. This bolt, being inconspicuous, is liable to be overlooked, and if it should be forgotten until the last stages of assembly, it will be necessary to strip the engine down again.

Piston. A special aluminium alloy is used for the piston which ensures correct differential expansion within the aluminium cylinder barrel, so that piston clearance is maintained throughout the temperature range at a reasonably constant value. It is fitted with 'Britest' rings designed to operate efficiently in the austenitic liner, especially during the running-in stage.

Compression Ratios. A range of compression ratios is available which enables the rider to adapt his engine

performance to suit a wide variety of sporting events. These are indicated in Table I.

Cams. Various cam combinations are available for the Gold Star engine, and the selection of these depends upon the desired performance. They are shown in Table II, and as a general rule the pair of cams fitted to an engine at the factory during manufacture and special tuning, is selected as being the most suitable for the specification ordered by the prospective owner. Thus, if a low compression piston is fitted, and the machine is to be used for touring, the cams in the first line will be employed. The reminader of the table is devoted to competitive events where the highest possible performance is required, and for these the owner is advised to follow the recommendations exactly as given.

TABLE I

PISTONS

B32 Gold Star		B34 Gold Star	
Component No. Complete	Com. Ratio	Component No. Complete	Com. Ratio
65-1681	6.5	65-1245	6.8
*65-1921	7.25	*65-1930	7.25
—	—	65-1265	7.5
65-1616	8.0	65-1285	8.0
*65-2254		*65-2260	8.5
65-1674 *65-2287	9.0	65-1532 *65-2300	9.0
65-1687	13.1	65-1279	11.0

* These Pistons are for engines on and after engine number with prefix CB

The main jet size for alcohol fuels depends largely upon the actual fuel used, as there are one or two proprietary brands available at the present time in addition to pure methanol, and the composition of these varies somewhat. It is for this and other reasons that the figures given for alcohol and dope are subject to alteration.

If the machine has been ordered in the first place with the T.T. carburetter specially tuned for alcohol fuel it will already have a suitable main jet, but if the owner is making the conversion himself, he should take as a rough guide the fact that the main jet for alcohol fuel should be at least two and a half times as big as that for petrol. For certain fuels, however, an even larger size may be found necessary, and the owner is advised to experiment with this point, bearing in mind that a careful test of the mixture strength with respect to performance should be made as quickly as possible, as full throttle work with a weak mixture is liable to cause rapid seizure. It is advisable when using alcohol fuel to run with the mixture slightly on the rich side. Any published recommendation for a given fuel should, therefore, be looked upon as a minimum. In the case of the B32 for J.A.P. racing fuel, No. 800 or No. 850 should be suitable, while for pure methanol a jet size up to No. 1300 may be found necessary. For the B34 Gold Star the sizes will, of course, be proportionately larger and will probably be up to 1700. The throttle valve and needle position may vary slightly to suit individual cases.

Petrol Tank. A two or four gallon tank can be fitted if specially ordered.

Ignition Timing. The best timing for the B32 on dope is $\frac{3}{8}$ inch advance, and $\frac{7}{16}$ inch advance on petrol or petrol-benzole, 39° ($\frac{15}{32}$ inch) Clubman's. On the B34 use $\frac{7}{16}$ inch advance for dope and $\frac{1}{2}$ inch advance for petrol or petrol-benzole ($\frac{7}{16}$ inch for scrambles with engine prefix No. BB), 36° ($\frac{13}{32}$ inch Scrambles and Clubman's).

Valve Timing. Timing procedure is as described for other 'B' models. (See page 46.) The actual valve timing for Gold Stars differs from Standard 'B' models, but the pinions are marked in the same way as the standard pinions to facilitate assembly. In addition, the inlet and exhaust pinions are marked 'IN' and 'EX' respectively.

TABLE II
RECOMMENDED CAM COMBINATIONS

No. Type of Service	B32 GOLD STAR		B34 GOLD STAR	
	Inlet	Exhaust	Inlet	Exhaust
1. Touring	65-2448	65-2450	65-2448	65-2450
2. Scrambles	*65-2454 65-2444	*65-2450 65-1891	*65-2454 65-2446	*65-2450 65-2446
3. Road Racing. Petrol-Benzole or Pool. (Plain or Megaphone) ..	†65-2444	*†65-2446 †65-1891	*65-2444 65-2442	65-2446
4. Alcohol (Megaphone)	*†65-2448	*†65-2450	*65-2448	*65-2450

* Fitted with Engine No. prefix 'BB' only. † With engine shaft pinion 65-696

Note.—Special inner and outer valve springs 65-1259 and 65-1249 respectively must be used with Touring or Scrambles 'BB' engines. All 'CB' engines 65-1894 inner, 65-1895 outer.

TABLE III
CARBURETTER SETTINGS

Fuel	Petrol or Petrol-Benzole								* Alcohol or Dope	
Carburetter ..	Monobloc		10T.T.		Grand Prix		Remote Needle		10T.T.	
Model	B32	B34	B32	B34	B32	B34	B32	B34	B32	B34
Choke size (ins.)	1 1/16	1 1/8	1 3/32	1 5/32	1 3/32	1 7/32	1 3/32	1 3/16 or 1 7/32	1 3/32	1 5/16
Main jet	—	240	360	360	210	260	450	520	1200	1700
Throttle valve ..	—	389/3	7	7	6	7	6	7	7	6
Needle position	—	2	3	3	3	2	4	4	3	4
Needle jet ..	—	.1065	.109	.109	.109	1.09	.109	.109	120	.120

See individual specification in Certificate of Performance

*Models with engine prefix No. 'BB'

Sparking Plug. For normal road use, or for fast touring, the most suitable sparking plug is the Champion model NA8. For the intermediate compression ratios Champion model NA10 or even the NA12 should be used, the latter for really high duty work. When using alcohol fuel with the highest compression piston, a Champion model NA14 plug will be necessary. The Champion NA14 is **essential** when racing on petrol or petrol/benzole.

IMPORTANT.—For warming up with dope use the Champion L11S, as a long reach plug with protruding points will foul the piston.

Oil Recommendations. The oil recommendations as given in the chart on page 36 are suitable for most purposes, but for ultra high speeds a castor base oil may be preferred. For this purpose the racing grades of oil supplied by the firms tabulated in the lubrication chart are suitable.

It must always be borne in mind that castor base oil will not mix with mineral oil, and if a change of lubricant is made, care must be taken to ensure that the entire system is thoroughly cleaned out, as otherwise a formation of heavy sludge may result with consequent damage to the engine.

Exhaust System. Unless the purchaser orders a special exhaust system to suit his requirements the Gold Stars are fitted as standard with a normal exhaust pipe and silencer, making them suitable for ordinary road work.

For racing events where silencers are not enforced, these will naturally be discarded and an exhaust pipe of suitable length, with or without megaphone, will be employed. Extension tailpipes are fitted in some cases as the length of a straight through pipe is determined partly by the engine performance as influenced by the actual cams used, and partly by the type of event in which the machine is to participate. The rider will, therefore, be well advised to experiment on his own machine until he finds the most suitable length of pipe to suit his requirements. As a guide see Table IV. It should be borne in mind that a reduction in length will increase the maximum speed at the expense of a slightly reduced performance low down, and conversely in the case of a pipe of greater length.

Gearbox. For road-racing the gear change mechanism can be supplied to operate in the reverse direction.

Maximum Safe Engine Speed. The maximum speed should not be allowed to exceed 6,800 r.p.m. on the B32 and 6,400 r.p.m. on the B34 unless otherwise specified in the individual Certificate of Performance issued with the machine.

Rev. Counters. These are available for Gold Star engines. The conversion entails the fitting of a modified timing cover.

Tyres. Sizes to individual requirements. Front Tyre:—3.00—21, or 3.00—19. Rear tyre: 3.25—19, 3.50—19 and 4.00—19.

Handlebar Levers (Front Brake and Clutch). On racing machines an additional knurled finger adjuster is provided at the handlebar lever.

Front Brake. For Scrambles a 7 in. dia. brake is used. (For adjustment see page 32.). Other models are fitted with an 8 in. dia. brake. This is described on page 60.

TABLE IV

EXHAUST COMBINATIONS

Exhaust System	B32 Gold Star	B34 Gold Star
Plain Pipe extension length measured on outside of bend (Scrambles)	53 ins.	53 ins.
Clubman's	43 ins.	42 ins.
Pipe for use with Megaphone (length, measured on outside of bend) ..	35 ins.	35 ins.
Megaphone, length ..	10½ ins.	14 ins.
Megaphone, major dia. ..	3 $\frac{29}{32}$ ins.	3 $\frac{1}{16}$ ins. (inverse cone
Exhaust Pipe dia. (Touring)	1 $\frac{5}{8}$ ins.	1 $\frac{3}{4}$ ins.
Exhaust Pipe dia. (Scrambles)	1 $\frac{5}{8}$ ins.	1 $\frac{5}{8}$ ins.
Exhaust Pipe dia. (Clubman's)	1 $\frac{3}{4}$ ins.	1 $\frac{7}{8}$ ins.

Gear Ratios. Four ranges of gearbox ratios are available for these models, as follows:

TABLE V

	1	*2	3	4
Internal Ratios	Standard	Close Ratios	Extra Close	Scrambles
Top ..	1.000	1.000	1.000	1.000
Third ..	1.210	1.101	1.099	1.325
Second ..	1.758	1.460	1.326	1.754
First ..	2.580	2.124	1.929	2.343

* To Special Order only.

With suitable engine shaft and gearbox sprockets the above four ranges of gearbox ratios provide suitable gearing for the events shown in Tables VI and VII.

TABLE VI

Gear ratios for B32 Gold Star ..	Top	Third	Second	First
Touring	5.6	6.77	9.86	14.42
Scrambles	7.73	10.24	13.56	18.11
Racing & Clubman's	5.28	5.80	7.00	10.15

TABLE VII

Gear ratios for B34 Gold Star ..	Top	Third	Second	First
Touring	5.0	6.05	8.79	12.90
Scrambles	7.26	9.62	12.73	17.0
Racing & Clubman's	4.52	4.96	5.99	8.71

The range of sprockets and gear ratios is given in Table VIII below.

TABLE VIII

Clutch	Rear Chain Wheel	Gear-box	Engine					
			16	17	18	19	20	21
43	42	16	7.05	6.63	6.26	5.93	5.64	5.38
		19	5.93	*5.6	*5.28	*5.0	4.75	*4.52
	46	16	*7.73	*7.26	6.85	6.50	6.18	5.89
		19	6.50	6.12	5.78	5.48	5.20	4.96

* These ratios are most commonly used.

Recommended gear ratios for various circuits are indicated in Table IX below.

TABLE IX

Circuit	Gearbox Type (See Table V)	Top gear	
		B32 G. S.	B34 G. S.
Aberdare	*2 or 3	5.93	5.28
Altcar	*2	5.93	5.28
Blandford	*2 or 3	5.38	4.75
Brands Hatch ..	3	5.93	5.0
Brough	*2	5.59	5.0
Eppynt	*2	5.93	5.0
Scarborough ..	*2	5.59	5.0
Silverstone	3	5.93	4.75
Snetterton	3	5.38	4.75
Thruxton	3	5.59	4.75
Clubmans	3	5.28	4.52

*Gearbox type 2 to special order only.

Front Wheel Removal (8 in. Brake only). This hub is also fitted with ball journal bearings and adjustment is not required.

Dismantle the assembly in the following order:—

1. *The brake anchor strap.* Take off the nut C, Fig. 20 on the cover plate, and slacken the nuts D at the opposite ends of the strap.

2. *The brake cable.* This must be uncoupled first at the lever E on the brake cover plate and then unscrewed from the Stop F.

3. *Pinch bolt A.* The wheel spindle is locked by means of this bolt, which is fitted to the nearside fork leg only It is only necessary to slacken the pinch bolt.

4. *The wheel spindle.* To unscrew, a tommy bar of suitable dimension should be inserted through the hole in the spindle head at B. *Note that the spindle has a left-hand thread and unscrews by turning in a clockwise direction.*

5. *Withdraw the spindle from the nearside.* Support the weight of the wheel when taking out the spindle, and the wheel can then be removed.

After removal, do not let the weight of the wheel fall on to the bush which projects from the brake side of the hub. Although the bush is pressed in, it may, if subjected to a sharp blow, fall inside the cover plate, so that the latter would have to be removed before the bush could be retrieved and located in position.

Separate Clip-on Handlebars. These can be adjusted radially about the fork leg centre or vertically, and have a total up and down movement of approximately $1\frac{5}{8}$ inches.

Each bar is clamped in position by two bolts fitted with a plain washer at each end and a shake proof nut with nylon insert.

To remove the handlebars (having slackened the bolts described in the previous paragraph) it is necessary to release the fork legs from their tapers in the top yoke and this is carried out as follows:—

Slacken the two pinch bolts, *D*, Fig. 5, in the bottom yoke. Remove the chrome fork caps *A*, and screw B.S.A. Service Tool No. 61-3350 into the thread at the top of one of the legs.

Vigorously tap the tool with a mallet until the fork leg is released from its tapered seating in the top yoke.

Having released the fork leg, it should be slid downwards sufficiently to permit the handlebar to be removed and then pulled up into its taper again by means of the service tool. This will maintain the front wheel in position while the other fork leg is released.

This operation can be carried out without the use of the Service Tool by unscrewing each chrome fork cap a few threads and tapping it down with a mallet until the fork leg is released. This method is not recommended except in an emergency, as considerable strain is placed upon the chrome cap, particularly when pulling the fork leg back into the top yoke.

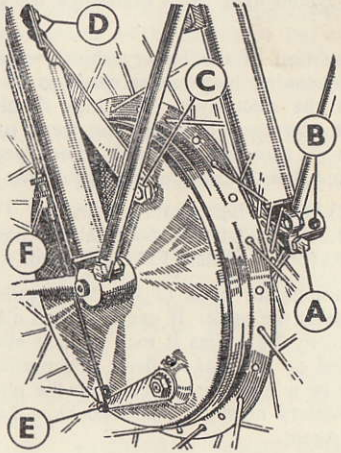


Fig. 20. *Front Wheel Removal* (8 *in. Brake*)

INSTRUCTIONS FOR THE MAINTENANCE OF LUCAS ELECTRICAL EQUIPMENT

fitted to

B.S.A. B Group Motor Cycles

The electrical equipment is designed and manufactured to give long periods of service without any need for adjustment or cleaning. The small amount of attention which is required is described below and we advise riders to carry out the procedure outlined in order to ensure that the best service is obtained.

BATTERY.

About once a month take off the battery lid, see page 17, remove the filler plugs from each of the cells and examine the level of the electrolyte in each cell. If necessary, add sufficient distilled water to bring the electolyte level with the top of the separators. Do not use tap water and do not use a naked light when examining the condition of the cells.

The condition of the battery should occasionally be checked by taking hydrometer readings of the specific gravity of the electrolyte. Readings should be taken after the motor cycle has been out for a run when the electrolyte is thoroughly mixed. The specific gravity readings and their indications are as follows:—

1.280-1.300	Battery fully charged.
About 1.210	Battery about half discharged.
Below 1.150	Battery full discharged.

The readings for each of the three cells should be approximately the same. If one cell gives a reading very different from the others it may be that electrolyte has been spilled or has leaked from this particular cell or there may be a short circuit between the plates. In this case the battery must be examined by a Lucas Service Depot or Agent.

Finally never leave the battery in a discharged condition for any length of time, wipe away all moisture and dirt

from the top of the battery and keep the terminals clean and smeared with petroleum jelly to prevent corrosion. (See Figs. 22 and 23 Wiring Diagrams.)

MAGDYNO.

The magdyno is a combined dynamo and magneto unit, the dynamo being mounted above the magneto and driven through gears from the magneto driving shaft.

DYNAMO.

Output Control. The dynamo is of the compensated voltage control type and is arranged to work in conjunction with a regulator unit which is fitted alongside the cutout. The regulator causes the dynamo to give an output which varies according to the load on the battery and its state of charge. The dynamo also gives an increase of output to balance the current taken by the lamps whenever they are switched on. It will be noted that during daytime running when the battery is in good condition the dynamo gives only a trickle charge so that ammeter readings will seldom be more than one or two amperes. A discharge reading may be observed immediately after switching on the headlamp, but after a short time the battery voltage will fall and the regulator will respond causing the dynamo output to balance the lamp load.

Maintenance. About every 10,000 miles, take off the cover band and check the brushes and commutator. See that the brushes move freely in their holders by holding back the brush springs and pulling gently on the flexible connectors. If a brush is inclined to stick, remove it from its holder and clean its sides with a petrol moistened cloth. Be careful to replace brushes in their original positions in order to retain bedding.

The commutator should be clean, free from oil or dirt and should have a polished appearance. If it is dirty, clean with a dry duster while the engine is slowly turned round. If the commutator is very dirty, moisten the cloth with petrol.

Lubrication. No lubrication is required to the dynamo as ball bearings are fitted to both the commutator and driving end bracket. These bearings are packed with

grease during assembly and will last until the machine is in need of a complete overhaul.

MAGNETO.

Cleaning and Adjustment. About every 3,000 miles remove the contact breaker cover and examine the contact breaker. If the contacts are burned or blackened, clean them with fine carborundum stone or fine emery cloth and afterwards wipe away dust or dirt with a petrol moistened cloth. Check the contact breaker setting after cleaning.

To check the contact breaker setting, turn the engine until the contacts are fully opened and insert the gauge provided on the ignition spanner. If the setting is correct (.012 to .015 in.) the gauge should be a sliding fit. If, however, the gap varies appreciably from the gauge, slacken the locknut on the fixed contact and turn the contact screw until the gap is set to the gauge. Finally tighten the locknut.

Next examine the pick-up, which can be removed when the fixing screws are withdrawn. See that the pick-up brush moves freely and while it is removed, clean the slip ring track and flanges with a soft dry cloth.

Lubrication (every 3,000 miles). The face is lubricated from a wick contained in the contact breaker base. To reach the wick, take out the screw *A* (Fig. 21) securing the spring arm carrying the moving contact and lift off the backing spring *C* and spring arm. The screw *B* carrying the wick can then be withdrawn. At the same time unscrew the contact breaker securing screw *D*, take the tappet which operates the contact spring from its housing and lightly smear with thin machine oil. When replacing, see that the backing spring is fitted on top of the spring arm and that its bent portion is facing outwards

Renewing High Tension Cable. A high tension cable showing signs of cracking or perishing must be replaced by 7mm. rubber covered ignition cable. To make the connection to the pick-up terminal, thread the moulded terminal nut over the cable, bare the end of the cable for about $\frac{1}{4}$ in., thread the wire through the washer removed from the original cable and bend back the wire strands. Screw the nut into its terminal.

LAMPS

Headlamp. To gain access to the head and pilot bulbs, slacken the front rim retaining screw, situated at the top of the rim. Disengage and withdraw the front rim and light unit assembly, removing the upper edge first. To remove the main bulb press the moulded adaptor inwards and turn it to the left. Lift off the adaptor and withdraw the defective bulb.

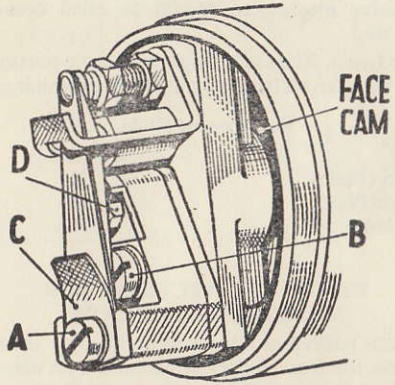


Fig. 21. *Magneto contact points*

When inserting a replacement bulb, locate the slot in the bulb flange with the projection in the bulb holder.

Refit the adaptor, engaging its moulded recesses with corresponding projections on the bulb holder. Press inwards and secure by turning the adaptor to the right. The pilot bulb holder is a push fit in the reflector. Refit the outer rim to the nacelle, locating the bottom of the rim first. With the Lucas prefocus type bulbs fitted in these lamps, the filament is correctly positioned during manufacture in relation to the focal point of the reflector. No further focusing is necessary.

Setting the Beam. The best way of checking the setting of the lamp is to stand the motor cycle in front of a light coloured wall at a distance of about 25 feet. If necessary, slacken the bolts securing the headlamp and move the lamp until, with the main driving light switched on, the beam is projected straight ahead and parallel with the ground. With the lamp in this position, the height of the beam centre on the wall should be the same as the height of the centre of the headlamp from the ground.

Stop Light Switch. This is operated by the brake rod through a spring. It is desirable to see that any mud or grease is periodically cleared away from the switch and the operating mechanism should be oiled occasionally with thin oil.

Rear Stop Lamp. The red transparent plastic portion of the lamp can be taken off by removing the two retaining screws.

Replacement Bulbs

	Lucas No.	Watts
Headlamp (Main)	312	30/24
Headlamp (Pilot)	988	3
Stop-tail lamp	384	6/18 (index)

WIRING CONNECTIONS FOR B.S.A. HEADLAMP COWL

When this is packed as a loose item (i.e., not installed in position on the front forks), it comprises an actual cowl unit, with the three following items attached to it:

The Main Switch. This is on the left-hand side, and has seven terminals, or binding posts, on its underside numbered clockwise.

Speedometer Head. This has on its underside the connector for the speedometer light on the side adjacent to the main switch, the other items being the control for the speedometer trip and the actual drive. The latter passes through the headlamp shell.

Ammeter. This is on the right, and has on its underside two terminals, the one next to the speedometer head being the negative, and the other being the positive.

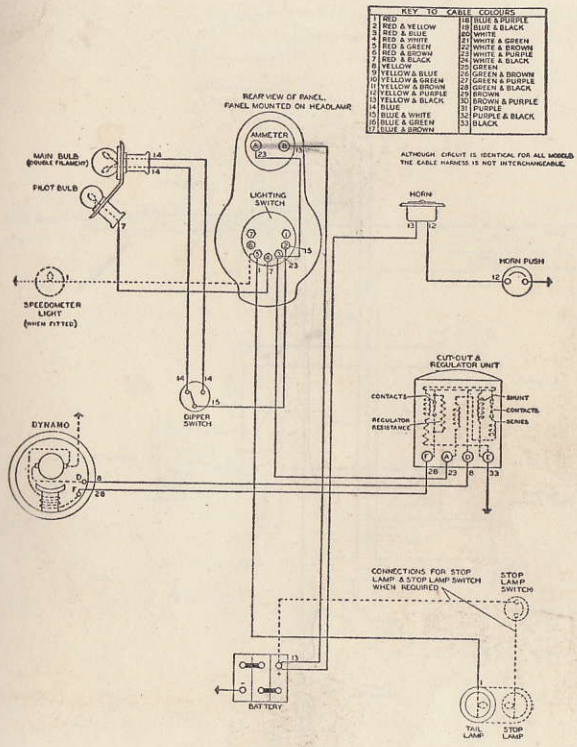


Fig. 22. 'B' Model wiring diagram (negative earth — early models)

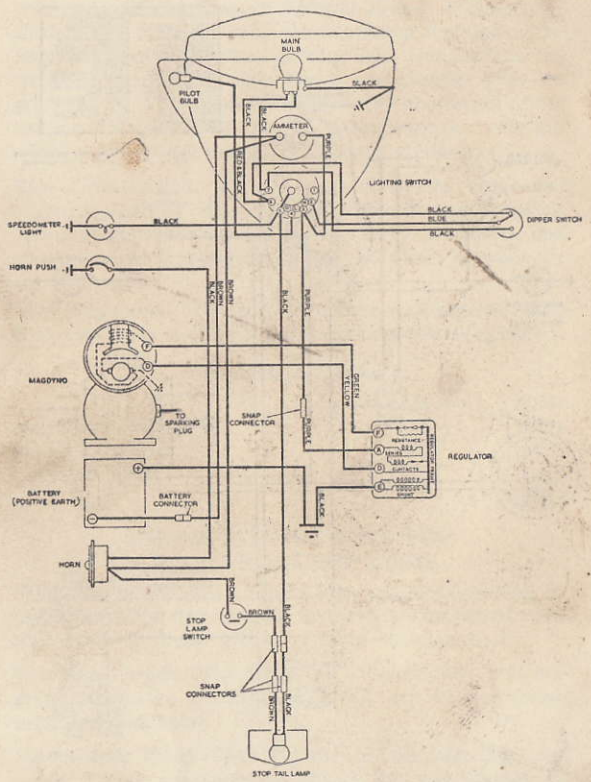


Fig. 23. 'B' Model wiring diagram (positive earth with underslung pilot lamp)

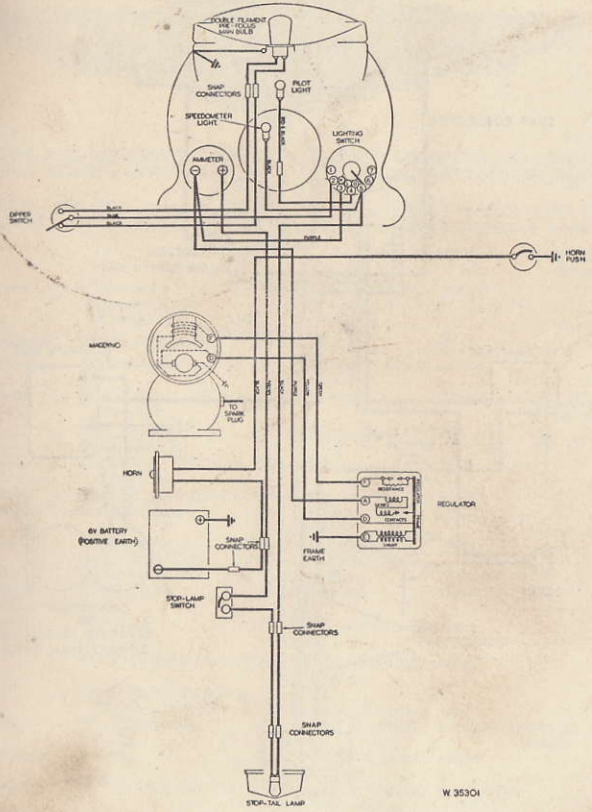


Fig. 24. 'B' model wiring diagram (positive earth — 1953 models)

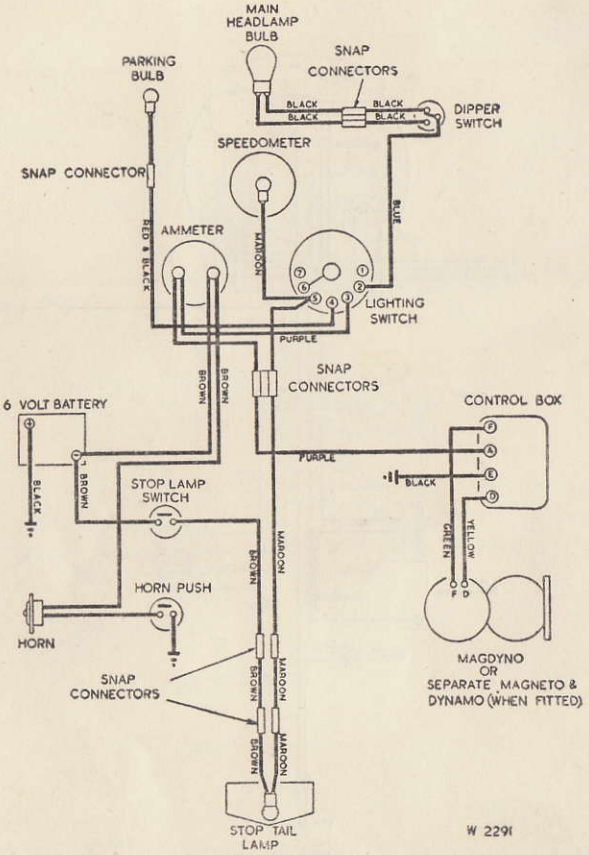


Fig. 25. 'B' model wiring diagram (positive earth — 1954-55 models)

B.S.A. MOTOR CYCLE SPARES STOCKISTS

GENUINE B.S.A. SPARES

SAVE TIME AND POSTAGE BY CONTACTING YOUR NEAREST B.S.A. STOCKIST FOR B.S.A. SPARE PARTS, SPARE PART CATALOGUES, INSTRUCTION BOOKS TRANSFERS ETC.

ALL B.S.A. DEALERS CARRY STOCKS OF B.S.A. SPARE PARTS BUT THE FOLLOWING APPOINTED STOCKISTS MAINTAIN A COMPREHENSIVE RANGE.

Town	*Name of Stockist*	*Address*	*Telephone No.*	*Telegraphic Address*
Aberdeen	J. Dawson	24-26 Thistle Street	25556	
"	George Cheyne (Cycles) Ltd.	147-179 Holburn St.	50341/2	Motobyke, Aberdeen
Aberystwyth	Gwalia Motor Co.	North Parade	525	
Accrington	Bill Snape Ltd.	379, 392 and 396 Blackburn Road	4724	
Aldershot	Philips Bros. (Aldershot) Ltd.	Birchett Road	1111/2	Phillips, Cycles Aldershot
Alloa	J. G. Robertson (Cycles) Ltd.	55-57 High Street	193	
Andover	Corbett & Ellis (Andover) Ltd.	Weyhill Road	2991	
Ashington	Mains of Ashington	Laburnum Terrace	3204	
Aylesbury	**Eborn's Garage**	44 Walton Street, Aylesbury	3150	Eborn's Aylesbury
Banbury	Trinder Bros.	2a Broad Street	2546	
"	Taylor Dow Ltd.	Southam Road, Oxon.		
Barnsley	**T. Garner & Son**	Sheffield Road	2866	
Barnstaple (Nth Devon)	Bob Ray Ltd.	43 High Street	4266	
Basingstoke	Fred Slade	May Place, London Rd, Hants.		
Bath	R. U. Holloway & Son	32-33-34 St. John's Rd., Bathwick	5084	
Bedford	The Imperial Cycle and Motor Cycle Co.	147 Tavistock Street	2374	
Belfast	W. J. Chambers & Co.	106 & 108 Donegall Pass	27253/4	Fastmote, Belfast
Biggleswade	Bryants	25, 27, 72 & 74 Shortmead Street	3108	
Birkenhead	Bob Simister Ltd.	540-544 New Chester Rd., Rock Ferry	Rock Ferry 1452	
Birmingham	County Cycle & Motor Co. Ltd.	265 and 266 Broad St. 104 Bath Row (Repairs) (closed Saturday 1 p.m.)	Mid. 2671 Mid. 2817	
"	C. E. Cope & Sons Ltd.	481-487 Hagley Road Edgbaston 17	Bearwood 2246/7	
"	Shovelbottom's Ltd.	376 Ladypool Road Sparkbrook 12	South 2212/3247	
"	Aston Auto Motors	173-177 Aston Road 6	Aston Cross 3201/2	

B.S.A. Motor Cycle Spares Stockists—*continued*

Town	Name of Stockist	Address	Telephone No.	Telegraphic Address
Blackburn ...	S. & G. Motor Cycles (Blackburn) Ltd.	15-17 Great Bolton St.	6678	
Blackpool ...	J. Hall & Son (Blackpool) Ltd.	102-6 Devonshire Road (opp. School)	22130	
Blandford ...	Badger Garages Ltd. ...	Salisbury Road	615	
Bolton	Charlie Robinson Motor Cycles Ltd.	119 and 121 Higher Bridge Street	3931	
Boscombe, Bournemouth	Craze Bros. Ltd. ...	473-475 Christchurch Road	Boscombe 33231/2	
Bradford ...	Sidneys Motor Cycles	107 Manningham Lane	29889	
„	J. K. Hirst Ltd.	41 Wakefield Road ...	22543	
Bridgwater ...	Anderson & Wall Ltd.	18 St. Mary Street ...	2416	Anderson & Wall Bridgwater
Brighton ...	Redhill Motors (Brighton) Ltd.	104 North Road ...	25281	
Bristol	S. J. Fair Motors Ltd....	201-3 Cheltenham Rd.	4-6238 & 4-1015	
Bromsgrove	Ralphs	110 Birmingham Rd. ...	3228	
Bury St. Edmunds	Barclay Motors Ltd....	Kings Road Corner ...	2345/9	
Cambridge ...	King & Harper Ltd. ...	Milton Road Corner...	3201	Motors, Cambridge
Canterbury ...	Hallet of Canterbury	St. Dunstan's Street ...	3046	
Cardiff	Car Distributors (Cardiff) Ltd.	134-140 City Road ...	30022	
„	Robert Bevan & Son ...	29-35 Castle Street ...	27477/8	
Carlisle	W. T. Tiffen & Son ...	Irishgate	25024	Tiffin, Irishgate, Carlisle
Carmarthen...	Eddie Stephens (Motors)	22-23 Water Street	C'then 6233	
Chatham	Grays of Chatham Ltd.	11-19 High Street ...	4005	
Chelmsford ...	Hadlers Garage Ltd. ...	New Street	4844/5	Hadler, Chelmsford
Cheltenham	H & L Motors Ltd. ...	Bath Street ...	2887	
Chester	Davies Bros. (Chester) Ltd.	34 Bridge Street ...	25510	
Chesterfield ...	Walter Wragg (Chesterfield) Ltd.	95 Lordswell Street ...	3622	
Chichester ...	W. Goodridge & Co. Ltd.	East Street	2033	
Clydebank ...	John A. Weddell ...	72-114 Dumbarton Rd.	1429	
Colchester ...	G.B.R. Motors Ltd. ...	1-2 East Hill	6131/2	
Colne, Lancs.	C. H. Scholfield (Motors) Ltd.	Market Place	859	
Coventry	Coventry Motor Mart, Ltd.	86 London Road... ...	22146/7	Coventry Motor Mart
Crawley ...	Lewis Thirkell Ltd. ...	60-62 The Boulevard, Crawley	25507	
Crewe	Cookes Garages ...	10-20 Nantwich Road	2011	Cookes Motors Crewe

B.S.A. Motor Cycle Spares Stockists—*continued*

Town	Name of Stockist	Address	Telephone No.	Telegraphic Address
Croydon ...	Godfreys Ltd.	228-234 London Road	Croydon 3641/2	Gofrabike, Croydon
Dagenham, Essex	Reginald Smith (Motor Cycles) Ltd.	Imperial House, New Road	Rainham 3284/2786	
Dalton-in-Furness	H. Holme	24-26 Ulverston Road	25	
Darlington ...	The Duplex Motor and Cycle Co. Ltd.	10-16 Grange Road ...	2071	Duplex, Darlington
„ ...	White Bros. (Darlington) Ltd.	201, 205-9 Northgate	67757	
Dartford ...	Schwieso Bros.	177 Lowfield Street ...	4279	
Derby	Ingle's Provincial Garages Ltd.	Walbrook Road ...	45289	
Doncaster ...	W. Cusworth (Doncaster) Ltd.	7 Hall Gate	4594	
Douglas, I.O.M.	Gilbert Harding Ltd....	18 Duke Street and 5 Market Street	Douglas 170	
Dudley ...	Chas. E. Cope & Sons Ltd.	93 and 193 High Street	53464	
Dundee	George McLean Ltd....	Ward Road	5087	Vehicles, Dundee
Dunstable ...	B. G. England (Dunstable) Ltd.	Half Moon Hill, London Road	843/4	
Eastbourne ...	Jempsons Ltd.	118-120 Seaside ...	756	Jempsons, Eastbourne
Edinburgh ...	J. R. Alexander & Co. Ltd.	10-14 Lothian Road ...	4455	Motorcycles, Edingburgh
Elgin ... ... **(Morayshire)**	Farquharson's	55-57 High Street ...	7188	Elgin 7188
Enfield	D. J. Shepherd & Co. (Enfield) Ltd.	434-6 Hertford Road, Enfield Highway	Howard 1631	
Exeter	P. Pike & Co. Ltd. ...	Alphington Street ...	58241	Piko, Exeter
Frome	J. Difazio Motor Cycles	25 Catherine Street ...	2913	
Gateshead, 8 ...	O. Carmichael & Son	71 87 High West Street	71815	
Glasgow, C3 ...	Bell Bros. (H.P.) Ltd.	215-229 St. George Rd.	Douglas 6414	Douglas 6414
„ **C4** ...	J. R. Alexander & Co. Ltd.	272 Great Western Road	Douglas 3802/3/4	Alex Moto Glasgow
Gloucester ...	Harpers of Gloucester	23a Worcester Street	23187	Gloucester 23187
Grimsby ...	H. J. Gresswell & Son Ltd.	13-15 & 19 Osborne St.	2202	
Guernsey ...	Millard & Co. Ltd. ...	Victoria Road	777	Millard Motors, Guernsey
Guildford ...	E. Pascall (Guildford) Ltd.	11-12 Woodbridge Rd., Guildford	Guildford 2274/5/6	
Harrogate ...	H. Aclam (Proprietor H. Baynes)	11 Bower Road	5125	

B.S.A. Motor Cycle Spares Stockists—*continued*

Town	Name of Stockist	Address	Telephone No.	Telegraphic Address
Harrow	E. T. Pink (Harrow) Ltd.	Station Road	3328	Pink, Harrow
Hatfield... ...	W. Waters & Sons Ltd.	32 Great North Road	2255	
Hereford ...	A. Kear & Co.	52 Commercial Street	2239	Kear, Hereford
Holbeach ...	Gordon Woodman Ltd.	34 Fleet Street	3221	
Hornchurch...	T. W. Kirby Ltd. ...	10 Roneo Corner ...	8785	
Hounslow ...	Stanley's Motors ...	46-48 Lampton Road...	Hounslow 1949	Stanleys Hounslow
Huddersfield	Earnshaw	Manchester Road ...	1232	
Hull	Browns (Witham) Ltd.	47-49 Witham	29802	
„	Jordans of Hull	Storey Street	24131	Gumption, Hull
Ilford	J. J. Double	1-4 Mildmay Parade, Cranbrook Road	Valentine 0191	
Ilkeston	Ray Gamble	Pelham St. opp. Bath St.	873	
Ipswich	Revetts Ltd.	Clarkson Street... ...	53726/7	
Jersey	Colebrooks (J. D. Poingdestre)	22½ New St. Johns Rd.	Central 642	Colebrooks, Jersey
Keighley ...	Dick Ratcliffe	Coldshaw Garage Haworth	Haworth 3133	
Kendal	Tom O'Loughlin Ltd.	66 Stricklandgate ...	315	
Kings Lynn ...	Peter Guest Ltd. ...	123/125 Wootton Road	4129	
Kirkcaldy ...	County Motors (Kirkcaldy) Ltd.	Junction Road	Dysart 5631	
Lancaster ...	Pye Motors	Parliament Street ...	3553	(After 6.30) 2039
Launceston ...	J. Wooldridge & Son...	Western Road	21	Wooldridge, Launceston
Leeds, 1 ...	Watson-Cairns & Co. Ltd.	157-8 Lower Briggate	33024/5	Watson-Cairns, Briggate, Leeds
Leicester ...	E. W. Campion & Son Ltd.	Welford Place	58054	
Lincoln	Wests (Lincoln) Ltd....	116 High Street ...	21262	
Liverpool, 3 ...	Cundles (Liverpool) Ltd.	41 Byrom St.	Central 4148	Cundles, Central 4148
Llawhaden ...	James Bowen & Sons (Llawhaden) Ltd.	Llawhaden, near Narberth, Pem.	Llawhaden 6	
London, E.6 ...	Godfrey's Ltd.	220 Barking Rd., East Ham.	Grangew'd 8088	Gofrabike Forgate
„ E.7 ...	Godfrey's Ltd.	418 Romford Road Forest Gate	Grangew'd 1234/5	Gofrabike, Forgate
„ E.8 ...	Eleanor Motors	265-7-9 Mare Street Hackney	Amherst 5134 & 3923	
„ E.18...	Longstaff Ltd.	88, High Road, Woodford	Bockhurst 6369/6757 5134-3923	
„ N.5 ...	Glanfield Lawrence (Highbury) Ltd.	28-32 Highbury Corner	North 2791	

B.S.A. Motor Cycle Spares Stockists—*continued*

Town	Name of Stockist	Address	Telephone No.	Telegraphic Address
London, N.12	George Grose Ltd. ...	407 High Rd., Finchley	Hillside 2149	
„ N.12...	Glanfield Lawrence Ltd.	407-419 High Road ...	Finchley 0091	Glanfin, Norphone, London
„ N.15 ...	Godfreys Ltd.	94-96 & 104 High Road, Tottenham	Sta. Hill 9960	Gofrabike London
„ N.W.1	J. Grose Ltd.	379-381 Euston Road	Euston 5231	
„ N.W.10	Slocombes Ltd. ...	251, 253, 269, 271 Neasden Lane, Neasden	Gladstone 3355	
„ S.E.11	Writers Ltd.	161-5 Kennington Ln.	Reliance 1362	
„ S.E.13	F. Parks & Son Ltd. ...	404 High Street, Lewisham	Lee Green 0535	
„ S.E.15	West End Motors Ltd.	171 High St., Peckham	New Cross 2589	
„ S.E.18	Cleare & Co. Ltd. ...	1 Woolwich High St.	Woolwich 0174	
„ S.W.6	Claude Rye Ltd. ...	897-921 Fulham Road Fulham	Renown 6174	Ryebikes, Wall-Green, L'dn
„ S.W.9	Pride and Clarke Ltd.	158 Stockwell Road	Brixton 6251 Ext 3	Priclarke, London
„ S.W.11	Owen Bros.	19 Battersea Rise, Clapham Junction	Battersea 7816	
„ S.W.17	Elite Motors (Tooting Ltd.)	951/61 Garratt Lane Tooting Broadway	Balham 1200	Elitemota Toot London
„ W.1 ...	Godfreys Ltd.	208-210 Great Portland Street	Euston 4632/4	Gofrabike, London
„ W.3 ...	Whitby's of Acton Ltd.	273 The Vale, Acton ...	Sh. Bush 5355/6	
„ W.5 ...	Kays of Ealing	8-10 Bond Street ...	Ealing 2387	Sparesokay, Ealux, London
„ W.12	Turners Stores ...	81-83 Goldhawk Road, Shepherds Bush	Sh. Bush 2436	
Lowestoft ...	R. Wright	67-69 London Rd. S'th	645	
Macclesfield	A. Watling	49 Buxton Road ...	3592	
Maidstone ...	Redhill Motors (Maidstone) Ltd.	The Broadway Maidstone	3096	
Manchester, 3	Tom Davies (Motors) Ltd.	233 Deansgate	Blackfriars 0681	
„ ...	Fred Fearnley Ltd. ...	692-4 Ashton Old Rd.	East 1445/6	Fernbike, Manchester
„ ...	Alex Parker	31 Palatine Road Northenden	Wythenshaw 2062	
Mansfield ...	Henstocks	128 Chesterfield Road	329	Henstock 329 Mansfield
Middlesbrough	J. T. Dickinson (Middlesbrough) Ltd.	160-162 Lindthorpe Rd.	3861	Payacob Middlesbrough

B.S.A. Motor Cycle Spares Stockists—*continued*

Town	Name of Stockist	Address	Telephone No.	Telegraphic Address
Neath	Fred Rist	16 and 17 Windsor Rd.	780	
Newcastle-on-Tyne	Dene (Newcastle) Motor Co. Ltd.	Haymarket	2-9165/6	Ened, Newcastle-on-Tyne
Newton Abbot	J. E. Green & Co. ...	87 Queen Street ...	653	
Newport (Mon.)	R. J. Ware & Sons ...	69 Commercial Street	66206	
Northampton	Glanfield Lawrence (Northampton) Ltd.	40-44 Wellingborough Road		
Norwich ...	Chapmans (Norwich) Ltd.	38-42 Duke Street ...	24727	
Nottingham	E. W. Campion & Son Ltd.	Arkwright Street and Queen's Road	83444	
Oldbury ...	Bromford Garage ...	Bromford Rd., Worcs.	Bro 2225	
Oldham	Alan Taylor (Northern) Ltd.	192 Manchester Street	Main 4456	
Oswestry ...	Roy Evans Motor Cycles	Willow Street	1144/3363	
Oxford ...	H. F. Temple ...	69 St. Thomas Street	47496/7	
"	John Avery	228/230 & 240 Banbury Road	57362/3	
"	Faulkener & Son ...	12 Cardigan Street ...	57279	
Parkstone ...	Bob Foster	472/6 Ashley Road ...	3500/1	
Perth	M. Shaw & Sons ...	143 High Street... ...	483	
Peterborough	Burrows Bros.	55-57 Westgate ...	2154	
Plymouth ...	P. Pike & Co. Ltd. ...	Millbay Road	Plymouth 63018	Piko, Plymouth
Pontardulais, Glam.	T. Griffiths	Forest Gate	Pontardulais 323	
Portsmouth	Jenkins & Purser Ltd.	277-281 Copnor Rd. ...	2339	
" ...	Glanfield Lawrence ...	147-157 Fratton Rd. ...	74331	
" ...	Percy Kiln Ltd.	65-67 Elm Grove ...	23734	
Preston	Loxhams Garages Ltd.	Central Garage, Charnley St.	Sales Dept. 4242 S'vice Dept. 4243	Loxhams, Preston
Pulborough ...	Gray & Rowsell (Bury) Ltd.	Bury Gate Pulborough	Bury 4	
Radcliffe ...	Will Lord (Motor Cycles) Ltd.	115 Blackburn Street	2002	
Reading ...	Phillips & Bloomfield Motors Ltd.	10-14 South Street ...	2635	
" ...	Stocker & Shepherd Ltd.	129 133 Oxford Rd.	52212 and 53983	
Redhill	The Redhill Motor and Cycle Works Ltd.	50-54 Brighton Road	327	
Ripon (Yorks.)	T. Ellis...	2 High Skellgate ...	Ripon 1079	
Rotherham ...	Ernest Cross	55-59 Drummond St.	3987	
Salisbury ...	Pankhurst (Weymouth) Ltd.	78/79 Exeter Street ...	5222/3	
Scarborough	E. Andrew of Scarborough Ltd.	149 Victoria Road ...	1857	
Sevenoaks ...	Angus Motor Cycles...	Station Parade	3338	

B.S.A. Motor Cycle Spares Stockists—*continued*

Town	Name of Stockist	Address	Telephone No.	Telegraphic Address
Sheffield, 1 ...	Walter Wragg Ltd. ...	Stanley Works, Wellington Street	26098	Sheffield 26098
Shrewsbury ...	J. R. Meredith	Coleham Head	6529	
Sittingbourne	Scoones' Garage ...	9 West Street ...	66	Scoones, Sittingbourne
Slough	Sid Moram	Wexham Corner, High Street	23767	
Southampton	Alec. Bennett Ltd. ...	152 Portswood Road	54081/2/3	
Southport ...	H. F. Brockbank ...	62 King Street	5054	
Southsea ...	Percy Kiln	65 Elm Grove ... ... Southsea	Portsmouth 23734	
St. Albans ...	Clarkes Ltd.	164 London Road ...	53153	
St. Helens, Lancs.	Geoff Duke Ltd. ...	Greenfield Rd. Garage	3918	
St. Ives, Hunts.	Hallens (Hunts.) Ltd.	8-10 The Broadway ...	St. Ives 3071	Hallens, St. Ives
Stockton-on-Tees	T. Cowie Ltd. ...	Norton Road, Shelton	65361	
Stockport ...	Theobald & Coppock	6 Chestergate	2843	Theobald, Coppock, Stockport
Stoke-on-Trent	J. & N. Bassett	Howards Place, Shelton	2890	
Stourbridge	Pearsons Cycle Depot	31 Market Street ...	5677	
Sunderland ...	Dunns Garage (Sunderland) Ltd.	Wheatsheaf Corner, North Bridge St.	57666/7	
Swansea	Glanfield Lawrence...	13, 14 Fisher Street ...	50311	
Swindon	Easters of Swindon...	73-75 Cricklade Road	4196/2786	
Taunton ...	W. P. Edwards (Motors) Ltd.	Station Road	2943	Edwards Motor Cycles, T'ton.
Thames Ditton	Comerfords Ltd. ...	Portsmouth Road ...	Emberbrook 5531	
Torquay ...	P. H. Sharam Ltd. ...	244-6 Union Street ...	4184 and 7255	
Troon, Ayrshire ...	Cooper Bros.	117-129 Templehill ...	925	
Truro, Cornwall	W. H. Collins & Son...	Kenwyn Mews	Truro 2168	
Tunbridge Wells	G. E. Tunbridge Ltd....	21 London Road ...	416	Motors, T'bridge Wells
Twickenham ...	Blays of Twickenham Ltd.	192-9 Heath Road ...	Popesgrove 2103 & 1435	
Uxbridge ...	Miles Motors ...	60 High Street ...	6000-6565/6	
Wakefield ...	Parkinson (Wakefield) Ltd.	88 Ings Road	2087	
Walsall ...	The Motor Cycle Mart. (Walsall) Ltd.	12 Ablewell Street ...	3363	
Warrington ...	Jack Frodsham Ltd....	37a Winnick Street ...	34713	

B.S.A. Motor Cycle Spares Stockists—*continued*

Town	*Name of Stockist*	*Address*	*Telephone No.*	*Telegraphic Address*
Watford ...	Lloyd Cooper & Co. Ltd.	61 Queens Road ...	2125	Lloyd Cooper, Watford
Wellington (Salop)	Bill Doran and Matt Wright	Park Street Garage ...	Wellington 138	
Westcliff-on-Sea	J. Costin & Sons... ...	233-241 London Road	Southend 42215	
Weston-super-Mare	Wyverns of Weston Ltd.	3 Locking Road	524	Wyverns Weston-s-M
Weybridge ...	W. L. Lewis & Sons ...	51 Church Street ...	2210	
Weymouth ...	Tilleys (Dorset) Ltd. ...	9 Frederick Place	72	
Whitehaven ...	Mark Taylor	21 King's Street,	252	
Wolverhampton	C. E. Cope & Sons Ltd.	168-9 Stafford Street...	24605/6	
Worcester ...	W. J. Bladder & Son ...	52 Sidbury	2438	Bladder, S'bury Worcester
Worksop ...	Ezra Sugden Ltd. ...	109 Gateford Road	3053	
Yeovil	The Yeovil Motor Mart	Hendford	267	Motor Mart Yeovil
York	C. S. Russell (York) Ltd.	Lawrence Street ...	23793	Russell, L'rence Street, York